THE

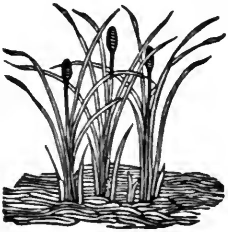
PHARMACOPŒIA

OF

JAPAN

FOURTH EDITION

Official from April 1, 1921



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OF

JAPAN

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1922

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All corrections and suggestions will be thankfully received.

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PREFACE

TO

THE ENGLISH TRANSLATION
OF THE FOURTH EDITION.

The council of the Pharmaceutical Society of Japan resolved in the meeting, November, 1919, to publish the English translation of the newly revised fourth edition of the Japanese Pharmacopœia and asked the committee of publication of our society to undertake this work on behalf of the Pharmaceutical society. We are now able to lay before public the complete English translation. It will give great pleasure and satisfaction to our society, if the publication of this reproduction proves to be of some convenience as before to the Pharmaceutical circles abroad.

Our grateful acknowledgments are due to those members of the committee of publication, who were acting in this work, for their interests and efforts in accomplishing the complete translation within a comparatively short time.

Prof. Dr. Wilh. Nag. Nagai, Ri.—Hak., Yak.—Hak.,
President of the Pharmaceutical Society of Japan.

Tokyo, March, 1922.

HISTORICAL INTRODUCTION

The establishment of the Japanese Pharmacopœia is due to Masayoshi Matsukata, Minister of Home Affairs, who submitted his project in October, 1880, to the Government of the time, in accordance with the view of the late Sensai Nagayo who was the director of the Sanitary Bureau, at that time, in the Department of Home Affairs.

The outline of Matsukata's project was as follows:—

Firstly, as a natural consequence of the non-existence of an authorised pharmacopœia, there is no standard for prescriptions and preparations, and such dangerous mistakes as the prescribing of German preparations according to English doses are frequently committed.

Secondly, since manufacturers freely prepare medicines, using as their authorities the pharmacopœias of various countries, different medicines often come into market under the same name, while identical medicines are often met with, labelled with different names.

Thirdly, as we have no standard of our own to judge thereby the qualities of the imported medicines, they must naturally be tested according to the Pharmacopœia of the country where they were manufactured; moreover, the foreign manufacturers, taking advantage of the non-existence of a Japanese Pharmacopœia, tend to use the cheapest raw materials of an inferior quality for manufacturing medicines, especially for the purpose of importing them into our country, thus advertising that they care for nothing but for their own pecuniary interests.

Now the only means of putting an end to these abuses is, according to Matsukata's opinion, to establish, in some way or other, a national Pharmacopœia, as by entrusting the Central

Council of Health with the power of selecting the medicines and compiling a Pharmacopœia.

In November of the same year, the Central Council of Health was entrusted by the Government with the power of compiling a Pharmacopœia, and in January of the next year, the President and the Members of the Committee of Publication, consisting of the following gentlemen, were appointed:—

PRESIDENT.

Junjirō Hosokawa, Secretary of the Senate.

MEMBERS OF THE COMMITTEE.

Jun Matsumoto, Surgeon General, I. J. A.
Tsuna Hayashi, Surgeon Lieutenant General, I. J. A.
Bunkwai Totsuka, Surgeon General, I. J. N.
Dr. Kensai Ikeda, Physician in Ordinary to the Imperial Court.
Sensai Nagayo, Director of the Sanitary Bureau.
Hiizu Miyake, Professor in the Faculty of Medicine, Tokyo University.
Kanehira Takaki, Fleet Surgeon, I. J. N.
Tōkwai Nagamatsu, Apothecary Colonel, 2nd Class, I. J. A.; Surgeon Colonel, 2nd Class, I. J. A.
Shōkei Shibata, Esq.
Dr. Eijkman, Professor in the Tokyo Pharmaceutical Laboratory.
Dr. Geerts, Professor in the Yokohama Pharmaceutical Laboratory.
Dr. Bælz, Professor in the Faculty of Medicine, Tokyo University.
Dr. Langgaard.
Dr. Bœkeman.

In January, 1881, the Committee held its first meeting, and settled the general outline of the Pharmacopœia, and the extent of its contents; it was also resolved that the drafts in Dutch and its Japanese translation, originally compiled at the request of the Home Office by Dr. Geerts and Dr. Dwars, both Professors in the Pharmaceutical Laboratory, should be made its basis. However, it was afterwards decided to compile the Japanese Pharmacopœia in German, independent of the old draft of 1877, and the numbers of the articles and the tables to be adopted were settled; and subsequently, the chief work of the meeting was directed to the compilation of the Pharmacopœia and the discussion of the articles to be adopted therein.

In July, 1883, Chūtoku Ishiguro and Ijun Ogata were appointed Members of the Committee.

In April, 1884, Junjirō Hosokawa was released from the office of President and succeeded by Hisamoto Hijikata, Vice-Minister of Home Affairs.

In September of the same year, Dr. Scriba and, in October, Dr. van der Heyden were appointed Members of the Committee.

In July, 1885, Viscount Hijikata, State Councillor, was released from the office of President, and Akimasa Yoshikawa, Vice-Minister of Home Affairs, was appointed President in his place.

On October 13, 1885, the Japanese Pharmacopœia was completed, and submitted to the Minister of Home Affairs, and in December, the President and all the Members of the Committee were released from duty.

On June, 25, 1886, the new Japanese Pharmacopœia was published, and became official from July 1, 1887.

The first edition of the Japanese Pharmacopœia contains 470 articles, with appendices including general rules in relation to the pharmaceutical preparations, lists of reagents and of volumetric solutions, and 6 tables, among which there is a list of medicines which should always be kept in the dispensaries. At the same time, a complete Latin translation was published by the Home Office.

The German draft which served as the basis of the new

Pharmacopœia was drawn up first by Dr. Geerts and Dr. Langgaard, and afterwards principally by Dr. Eijkman, whose commentary of the first edition of the Japanese Pharmacopœia was also published by the Sanitary Bureau. The gentlemen who participated in the compilation of the new Pharmacopœia, without being themselves Members of the Committee, are as follows:—

Seisuke Tsujioka, Director of the Yokohama Sanitary Laboratory.

Jun-ichirō Shimoyama, Assistant Professor in the Faculty of Medicine, Tokyo University.

Keizō Tamba, Assistant Professor in the Faculty of Medicine, Tokyo University.

Tōkichirō Niwa, Assistant Professor in the Faculty of Medicine, Tokyo University.

Tōkwai Hayashi, An Official in the Home Office.

Ta-ichirō Ōnaka, Assistant Chemical Expert, 1st Class, of the Home Office.

In April, 1888, with the view of revising the first edition of the Japanese Pharmacopœia, the following gentlemen were appointed as the Members of the Revision Committee of the Japanese Pharmacopœia:—

Dr. Wilhelm Nagayosi Nagai, Professor in the College of Medicine, Imperial University.

Dr. Juntarō Takahashi, Professor in the College of Medicine, Imperial University.

Dr. Jun-ichirō Shimoyama, Professor in the College of Medicine, Imperial University.

Dr. Keizō Tamba, Professor in the College of Medicine, Imperial University.

Dr. Seitoku Kashimura, Professor in the College of Medicine, Imperial University.

Seisuke Tsujioka, Chemical Expert, 3rd Class, of the Home Office.

Yoshizumi Tahara, Chemical Expert, 4th Class, of the Home

Office.

Koheida Sakurai, Chemical Expert, 5th Class, of the Home Office.

Kōichi Shimada, Assistant Chemical Expert, 1st Class, of the Home Office.

Shōkei Shibata, Esq.

The Revision Committee at first discussed the articles to be further added to the Pharmacopœia then in use, and in September, 1888, set forth the drafts of the 2 articles on *Cocainum Hydrochloricum* and *Antifebrinum,* and after a deliberate discussion, decided to adopt them. Since then, the Committee, after a full investigation into the important points to be revised, came to the conclusion that it would be much better, in order to avoid promiscuous confusions resulting from numerous necessary changes, to make a thorough revision of the first edition. The draft of the Revised Pharmacopœia was begun in September, 1888, and after deliberate discussions, it was completed in October, 1890, and submitted in March, 1891, to the Minister of Home Affairs who, after consulting the Central Council of Health, issued the Revised Pharmacopœia which became official from January 1, 1892.

About ten years passed since the publication of the second revised edition of the Japanese Pharmacopœia, and it became necessary to revise it again, in accordance with the progress of the science of medicine and that of pharmacy.

In March, 1900, the regulation relating to the revision of the Japanese Pharmacopœia was issued by the Imperial Ordinance No. 80. (*33rd year of Meiji*), and the necessary Committee was organised, and in April, the Chairman, the Secretary and the Members of the Committee of Revision were appointed.

In July, 1902, Tai Hasegawa, Director of the Sanitary Bureau, resigned the Chairmanship, and Viscount Chūtoku Ishiguro, Surgeon General, I. J. A., was appointed in his place.

On April 28, 1900, Keinosuke Miyairi, Medical Expert in the Home Office, was appointed Secretary of the Committee.

On March 14, 1902, Keinosuke Miyairi, Medical Expert in the Home Office, resigned, and Yōshō Kurimoto, Medical Expert in the Home Office, was appointed Secretary in his place.

On December 28, 1902, Yōshō Kurimoto, Chief Surgeon to the Metropolitan Police Office, resigned, and Shinzō Ohara, Councillor to the Home Office, was appointed Secretary in his place.

On April 13, 1903, Shinzō Ohara, Councillor to the Home Office, was released from the Office of Secretary, and Mokichi Morita, Director of the Sanitary Bureau, was appointed in his place.

On September 3, 1903, Mokichi Morita, Director of the Sanitary Bureau, resigned, and Seitarō Kubota, Director of the Sanitary Bureau, was appointed Secretary in succession to the above.

On May 2, 1902, Intsū Aoyama resigned his post as a Member of the Committee, and Tatsukichi Irisawa, Assistant Professor in the Coll. of Med., Tokyo Imperial University, was appointed in his place.

On July 8, 1902, Seitoku Kashimura, a Member of the Committee, died.

On December 12, 1903, Masanao Koike resigned his post as a Member of the Committee.

On February 3, 1904, Tōkichirō Niwa, Assistant Professor in the Coll. of Med., Tokyo Imperial University, was appointed a Member of the Committee.

On June 5, 1904, Seisuke Tsujioka, a Member of the Committee, died.

On July 1, 1904, Hirotake Saitō, Chemical Expert, Imperial Sanitary Laboratory, was appointed a Member of the Committee.

In May, 1900, the first meeting of the Committee was held in the Home Office, and the general plan to be followed in revising the Pharmacopœia was arranged.

But a complete revision naturally requires a longer time, and therefore previous to such a revision, the articles for the newly introduced medicines and also for others commonly used at the time, were discussed as occasion arises and added in the form of appendices. Thus the article for *Acidum Gallicum* and 32 others were added by the Departmental Ordinance No. 48. (*33rd year of Meiji*), that for *Serum Antidiphthericum* and 2 others were added by the Departmental Ordinance No. 3. (*June, 36th year of Meiji*), and that for *Aqua Carbolisata pro Desinfectione* and another article were added by the Departmental Ordinance No. 8. (*May, 37th year of Meiji*).

The revision of the Pharmacopœia was completed in March of the year 1906, and submitted to the Minister of Home Affairs, who issued the Third Reivsed Pharmacopœia by the Departmental Ordinance No. 21. (*July, 39th year of Meiji*), which became official from January 1, 1907.

Ten years passed since the publication of the third revised edition of the Japanese Pharmacopœia, and it became necessary to revive it again in accordance with the progress of the medical and pharmaceutical science and especially to the influence of the great war. Thus the Fourth Edition of the Japanese Pharmacopœia was published.

PREFACE

After the current Pharmacopœia was decided to be revised in March 1915, the first meeting of the Revision Committee was held in April of the same year, and the general plan to be followed in revising the Pharmacopœia was so arranged that the Chief Members shall inquire their special branches.

But a complete revision naturally requires a longer time, and therefore previous to such a revision, the articles for such medicines, which urge their issue, were discussed, as occasion arises, and submitted to the Minister of Home Affairs.

Thus in October 1915 (the 4. year of Taishō) the articles for Serum Antidiphthericum and another were issued by the Departmental Ordinance No. 11., and in January 1916 (the 5. year of Taishō) that for Acidum Lacticum was issued by the Departmental Ordinance No. 1.

From May 1915 the medicines to be omitted from the current Pharmacopœia and those to be added to the new edition were inquired into and decided upon ; from February 1916 the real work of revising the Pharmacopœia was begun.

In April, 1919, a Committee of Publication was elected from among the Chief Members of the Committee.

During the time of 5 years and 2 months since the beginning of the revision (March 1915) 43 general meetings, 94 meetings of the Chief Members, and 27 meetings of the Committee of Publication were held.

Thus the fourth revision of the Japanese Pharmacopœia was completed in May 1920, and submitted to the Minister of Home Affairs.

In this revision 73 articles were newly added, 94 articles omitted, and as result of inquiries and practical investigations about 1400 alterations, besides numerous improvements of the terms and phrases in almost every article.

Important changes of general interest are as follows:

1. Medicines which are generally used, and especially the native materials are adopted.
2. The following medicines are newly added:—

LIST OF MEDICINES NEWLY ADDED TO THE PHARMACOPŒIA.

Acetonum.
Acidum diaethylbarbituricum.
Aethylium chloratum.
Aethylmorphinum hydrochloricum.
Agar-Agar.
Antipyrino-Caffeïnum citricum.
Argentum colloidale.
Benzaldehydum.
Benzolum.
Bismutum jodatum subgallicum.
Calcium chloratum.
Calcium lacticum.
Capsulae.
Chloroformium pro narcosi.
Cortex Cinnamomi Loureirii.
Emetinum hydrochloricum.
Emplastrum saponatum salicylatum.
Emulsiones.
Emulsio Olei Jecoris.
Electuaria.
Ferrum sulfuricum siccum.
Folia Scopoliae.
Herba Swertiae.
Hydrargyrum sulfuratum rubrum.
Kalium sulfoguajacolicum.
Lignum Santali album.
Limonada citrica.
Limonada hydrochlorica.
Linimenta.
Liquor Aluminii acetici.
Liquor Gelatinae sterilisatus.
Liquor Hydrogenii peroxydati.
Liquor Jodi compositus.
Liquor Kali caustici.
Liquor Natrii chlorati physiologica.
Liquor Ringeri.
Methylenum coeruleum.
Natrium thiosulfuricum.
Oleum Arachidis.
Oleum Pruni armeniacae.
Oleum Tsubaki.
Paraaminobenzoyldiaethylaminoaethanolum hydrochloricum.
Pastae.
Pasta Sulfuris cum Pice liquida.
Pastilli Acidi acetylsalicylici.
Pastilli Chinini hydrochlorici.

Pastilli Kalii jodati.
Pastilli stomachici.
Phenolphthaleïnum.
Pilulae Acidi arsenicosi.
Pilulae Ferri et Chinini.
Pilulae Guajacoli carbonici.
Pilulae Kreosoti carbonici.
Pulveres.
Pulvis stomachicus.
Pulvis Zinci cum Amylo.
Pyoktaninum coeruleum.
Radix Polygalae.
Saturationes.
Sirupus Abelmoschi.
Sirupus Polygalae.
Spirituosa medicata.
Talcum depuratum.
Theophyllinum.
Tinctura Jodi diluta.
Todaiwo.
Tropacocaïnum hydrochloricum.
Unguentum Argenti colloidalis.
Unguentum basilicum.
Unguentum camphoratum.
Unguentum Willkinsoni.
Unguentum Wilsoni.
Vaselinum flavum.

3. Those, which are omitted, are as follows:—

LIST OF ARTICLES OMITTED FROM THE PHARMACOPŒIA.

Acetum aromaticum.
Acetum Scillae.
Acidum carbolicum crudum.
Albumen Ovi siccum.
Anetholum.
Aqua Amygdalarum amararum.
Aqua Anisi.
Aqua Carvi.
Aqua Picis.
Arsenum jodatum.
Carrageen.
Carvonum.
Chininum bisulfuricum.
Collemplastrum.
Cortex Mezerei.
Extractum Aconiti Napelli.
Extractum Cardui benedicti.
Extractum Cascarillae.
Extractum Physostigmatis.
Extractum Phytolaccae.
Extractum Ratanhiae.
Flores Arnicae.
Flores Chamomillae romanae.
Flores Malvae.
Flores Rosae.
Flores Sambuci.
Flores Tiliae.
Flores Verbasci.
Folia Althaeae.
Folia Belladonnae.

Folia Bucco.
Folia Coca.
Folia Farfarae.
Folia Melissae.
Folia Trifolii fibrini.
Fructus Carvi.
Gossypium carbolisatum.
Gutti.
Herba Cardui benedicti.
Hydrargyrum cum Creta.
Kino.
Lapis Pumicis.
Lignum Santali rubrum.
Liquor Arseni et Hydrargyri jodati.
Liquor Ferri Albuminati.
Liquor Ferri oxychlorati.
Liquor Nitroglycerini.
Magnesia usta ponderosa.
Magnesium carbonicum ponderosum.
Mel rosatum.
Nitroglycerinum.
Oleum Hyoscyami.
Oleum Juniperi.
Oleum Lauri.
Oleum Myristicae aethereum.
Oleum Resinae empyreumaticum.
Oleum Sabinae.
Oxymel.
Oxymel Scillae.
Paraldehydum.
Pastilli Acidi borici.
Pastilli Ferri lactici.
Pastilli Kalii chlorici.
Pastilli Menthae.
Pastilli Natrii bicarbonici.
Pilulae Aloës et Asae foetidae.
Pilulae Chinini sulfurici.
Pilulae Colocynthidis et Hyoscyami.
Pilulae Ferri carbonici Blaudii.
Pilulae Hydrargyri.
Pulvis aerophorus laxans.
Radix Gelsemii.
Radix Phytolaccae.
Radix Ratanhiae.
Radix Serpentariae.
Resina Dammar.
Semen Tonco.
Sirupus Croci.
Sirupus Sennae cum Manna.
Sparteïnum sulfuricum.
Species laxantes.
Species pectorales.
Spiritus Juniperi.
Tinctura Aloës.
Tinctura Gelsemii.
Tinctura Lavandulae composita.
Tinctura Ratanhiae.
Tinctura Scillae.
Tinctura Serpentariae.
Unguentum Paraffini.
Unguentum stibiatum.
Unguentum sulfuratum.
Veratrinum.
Vinum stibiatum.

4. The formulas and molecular weights of the chemical compounds as well as the names of the original plants and animals are always given next to the Japanese names.

5. The degrees of temperature for such terms as '*ordinary temperature,*' '*tepid*' ('*lukewarm*'), '*warm water*', '*boiling water*', and '*water bath*' are fixed.

6. Maximum doses fixed by the body weight of the japanese adult are given at the end of every article.

7. The meaning of the term '*weighable*' is fixed.

8. The indicators to be used for the volumetric determinations are fixed and always given at the end of every article.

9. The method determining the optical rotation is fixed.

10. The method determining the melting point is altered.

11. The method determining the congealing point is fixed.

12. The method determining the boiling point and that of the destilling test are fixed.

13. The method determining the degrees of acidity is fixed.

14. The method determining the acid value is fixed.

15. The method determining the saponification value is fixed.

16. The method determining the ester value is fixed.

17. The method determining the iodine value is fixed.

The names of the officers, and the members of the Revision Committee of the Japanese Pharmacopœia, who were acting on May 25, 1920, are as follows:—

CHAIRMAN.

Dr. Wilh. Nag. Nagai, Rigakuhakushi, Yakugakuhakushi;
Prof. in the Coll. of Med., Tokyo Imperial University.

MEMBERS OF THE COMMITTEE.

Dr. Rint. Mori, Igakuhakushi, Bungakuhakushi.

*Dr. Keiz. Tamba, Yakugakuhakushi ; Prof. in the Coll. o Med., Tokyo Imperial University.
Dr. Sōs. Kimura, Surgeon General I. J. N.
*Dr. Yosh. Tahara, Yakugakuhakushi; Director of Imperia Sanitary Laboratory.
*Dr. Jun. Takahashi, Igakuhakushi; Prof. in the Coll. of Med. Tokyo Imperial University.
Dr. Tad. Honda, Igakuhakushi, Surgeon General I. J. A.
Dr. Kin. Miura, Igakuhakushi; Prof. in the Coll. of Med. Tokyo Imperial University.
*Dr. Keiz. Ikeguchi, Yakugakuhakushi, Chemical Expert Director of the Naikoku Pharmaceutical Factory.
Dr. Teis. Tsuruta, Surgeon General, I. J. A.
*Dr. Sab. Takahashi, Yakugakuhakushi; Chief Apothecary, 1st Class, I. J. N.
*Dr. Tōk. Niwa, Yakugakuhakushi; Prof. in the Coll. of Med. Tokyo Imperial University.
Dr. Tad. Yamada, Yakugakuhakushi; Chief Apothecary t the Imperial Court.
*Dr. Har. Hayashi, Igakuhakushi; Prof. in the Coll. of Med. Tokyo Imperial University.
Dr. Hog. Uno, Igakuhakushi.
*Dr. Mat. Watanabe, Yakugakuhakushi; Apothecary Colonel I. J. A.
*Dr. Shuh. Isono, Yakugakuhakushi ; Apothecary Colonel, I. J. N.
*Dr. Yas. Asahina, Yakugakuhakushi; Prof. in the Coll. o Med., Tokyo Imperial University.
Dr. Tas. Satō.
Dr. Kōt. Nishizaki, Yakugakuhakushi ; Chemical Expert, Metropolitan Police Office.
Mas. Takahashi, Chemical Expert, Imperial Sanitary Laboratory.
Dr. Keita Shibata, Rigakuhakushi ; Prof. in the Coll. of

Science, Tokyo Imperial University.

SECRETARY.

Jun. Yamada, Secretary of the Ministry of Home Affairs.
Mich. Yuzawa, Secretary of the Ministry of Home Affairs.

Note.—The asterisk indicates a Chief Member of the Committee.

INTRODUCTORY NOTES

The articles are arranged in the alphabetical order of the Latin names of medicines.

At the head of each article, the ordinary popular names, if any, are given besides the Latin and the Japanese names.

In the case of chemical compounds, their chemical names are given if possible.

In each article, statements are in the following order:— (1) preparation, (2) condition, (3) properties, (4) reactions, (5) tests and (6) preservation. But any of these is omitted, when not essential.

In the case of drugs, the names of the original plants and animals are given.

The method of preparation is given only in cases where it is necessary to fix the composition of medicines.

In the case where the chemical composition is known, formula and molecular weight are given.

The atomic weights selected by the International Atomic Weight Committee of 1916 are adopted.

For weights and measures, the Metric System is adopted, and for one gramme, two centimetres, three cubic centimetres, figures with such abbreviations as 1 g, 2 cm, and 3 ccm are used.

Temperature is taken by a thermometer graduated according to Celsius, and 15° is made the normal temperature, 15—20° ordinary temperature and 30—40° tepid (lukewarm).

Water of 60—70° is made warm water, and that of about 100° hot (boiling) water.

The purity or the adulteration of medicines is judged by their condition, properties, reactions, tests etc.

The number of parts mentioned in every article always means so many parts by weight.

In cases where the strength of a solution as (1 : 10) or (1 : 20) is given, these abbreviations mean that the solution referred to contains 1 part by weight of the substance in about 10 or 20 parts by weight of the solution.

In every article where properties or tests are described, '*water*' always means '*distilled water.*'

The qualitative tests of a medicine, unless otherwise stated, are done by taking about 10 ccm of its solution in a test tube which has an internal diameter of about 1,5 cm.

In cases where the name of the solvent is not mentioned, being only stated 'a solution', it is always meant, that distilled water is used as the solvent.

Extraction '*in the cold*' ('*maceration*') is done at the temperature of 15—25°, and extraction by '*warming*' is done at the temperature of 35—45°.

The temperature of a water bath, unless otherwise stated, always means about 100°, and in place of a water bath a steam bath of about 100° may be used.

Unless otherwise stated, only the dry drugs are used, and their drying is done at a temperature not above 40°.

In the case of the strong drugs or their preparations, the method of testing their chief consituents is given.

The maximum doses for an adult are given at the end of every article.

When a medicine is to be preserved in glass bottles '*protected from light,*' black or yellowish-brown glass bottles are employed.

The term '*weighable*' means a quantity which is more than 0,001 g.

The indicators are given at the end of every article of medicine for its assay they shall be used.

The polarimetric examination is made with the sodium light and at the temperature of 20°, unless otherwise stated. Its result is indicated by the term αD20°, the rotatory power in the length of 100 mm of column of liquid in the tube.

In determining the melting point, a thin-walled capillary glass tube, not above 1 mm in internal diameter, is closed at one end, and filled to the height of 2—3 mm with the substance, previously finely powdered and dried for 24 hours in an exsiccator, unless otherwise stated. The capillary glass tube is then fixed to the thermometer bulb and introduced into sulphuric acid, which is contained in a strong glass tube of about 2—3 cm in internal diameter and about 30 cm in length, with a bulb at its lower end, which has a capacity of about 100 ccm and is filled up to two third. The sulphuric acid is now heated until a temperature of about 10° below the supposed melting point is reached, and then the rate of rise in temperature is regulated to about 1° per half a minute. The temperature at which the substance melts and forms a transparent drop is taken as its melting point.

In determining the melting point of fats and other similar substances, they are at first melted, sucked up into a thin-walled capillary glass tube, which is about 1 mm in internal diameter and bent into such a form as the alphabetical letter U, to the same height in the both legs, and then allowed to solidify completely by cooling on ice for 2 hours or at a low temperature (about 10°) for 24 hours. The capillary tube is then attached to the bulb of a thermometer, introduced into a mixture of glycerin and water in the equal parts by volume, which is contained in a test tube, and warmed gradually. The temperature at which the fat melts to a transparent liquid is taken as its melting point.

In determining the congealing point, about 10 g of substance together with a thermometer is introduced into a test tube and melted carefully. The test tube is then introduced into water of the temperature of about 5° below the supposed congealing point, and cooled until the temperature of about 2° below the congealing point is reached. The substance is induced to congeal by stirring with the thermometer, and, if necessary, by adding a little chip of the substance under examination. The highest point, which the mercury thread of thermometer reaches during the congealing, is defined as the congealing point.

In identifying of medicines by their boiling point, a thin-walled capillary glass tube of about 1,5 cm in internal diameter and about 30 cm in length, with a small hole for the escaping vapors about 3 cm below upper end and lower end, the bottom of which is blown up into a smaller second bulb, is employed. The substance, together with a thick-walled capillary glass tube of about 6 mm in length, closed at one end, to prevent retarded boiling, is placed in the smaller bulb. The thermometer is by means of a cork at the top of the tube so supported that its bulb is just in the midpoint of the oblong ovate bulb. The tube thus arranged is then so introduced into such a tube as being used for determining the melting point that the smaller bulb with the substance is dipped into sulphuric acid in the bulb filled up to two third. The sulphuric acid is then heated just in the same manner as in the case of determining the melting point. The constant temperature, at which the bubbles are continually evolved from the substance, is defined as its boiling point.

In judging the purity of medicines by the distillation, 50 ccm at least of substance are distilled from a distilling flask of about 75—100 ccm capacity, the thermometer bulb being placed 1 cm below the side tube and a few pieces of unglazed porcelain, to prevent a retarded boiling, being thrown into the liquid. Almost total quantity of the substance should distil over within the temperature which is indicated in the text.

The degrees of acidity of fat is the number of cubic centimetre of normal potassium hydroxide volumetric solution, required to neutralize free acid in 100 g of fat. In determining it, 5—10 g of fat are dissolved in 30—40 ccm of the mixture of ether and alcohol in equal volumes, of neutral reaction, and titrated with tenth-normal potassium hydroxide volumetric solution, as indicator 1 ccm of phenolphthalein solution being added. In case where the fat partially separates out, a new portion of the mixture above mentioned is added.

The acid value of wax, resin or balsam is the quantity of potassium hydroxide, expressed in milligrammes, required to neutralize the free acid in 1 g of these substances. The method determining it is given under each article.

The saponification value is the quantity of potassium hydroxide, expressed in milligrammes, which is required to neutralize free acids and to saponify esters in 1 g of fat, oil, wax or balsam. Unless otherwise stated the determination is conducted as follows: 1—2 g of the substance to be tested is weighed in a strong glass flask of 150 ccm capacity, and to it 25 ccm of half-normal alcoholic potassium hydroxide volumetric solution is added. Into the neck of the flask a glass tube of 75 cm in length is inserted by means of a perforated cork. The flask is then heated on a water bath for 15 minutes, frequently rotating the contents to saponify completely. While still warm 1 ccm of the phenolphthalein solution is added, and immediately the excess of potassium hydroxide is titrated with half-normal hydrochloric acid volumetric solution. In order to adjust the titer of half-normal alcoholic potassium hydroxide volumetric solution, a blank test is made, whenever the estimation is done.

The ester value is the quantity of potassium hydroxide, expressed in milligrammes, required to saponify esters in 1 g of volatile oil or wax. The method of estimation is given under each article.

The iodine value is the quantity of iodine, which combines with unsaturated compounds contained in 100 parts by weight of fats or fixed oils. It is determined as follows: Introduce a weighed quantity of melted fat or fixed oil (0,8—1,0 g for oil of theobroma; 0,6—0,7 g for hog's lard; 0,3—0,4 g for almond oil, arachis oil, olive oil, apricot kernel oil, sesame oil, and tsubaki oil; 0,15—0,18 g for hydnocarpus oil, cod liver oil, and linseed oil) into a glass-stoppered bottle of about 250 ccm in capacity, dissolve it in 15 ccm of chloroform, add 30 ccm of the mixture of equal volumes of alcoholic iodine solution and alcoholic mercuric chloride solution (allowed to stand for at least 48 hours after mixing), and, if the solution does not become clear even by agitation, add a little more of chloroform, or when after a while the color nearly disappears, add a fresh portion of the mixture of iodine and mercuric chloride mentioned above, so adjusting its quantity, that after standing at ordinary temperature protected from light for 2 hours (for 18 hours for linseed and cod liver oil), the brown color is still retained. Now add 15 ccm of potassium iodide solution, agitate, and then add 100 ccm of water to this mixture. When a red precipitate is produced, add a new portion of potassium iodide solution. Then add tenth-normal sodium thiosulphate volumetric solution, thoroughly shaking after each addition, until the color of both aqueous and chloroform layer becomes quite pale. Then add a few drops of starch solution, and continue the titration until a blue color is discharged. Whenever this test is carried out, a blank test should be made to control the titer of the iodine and mercuric chloride solution.

For the preparation of the cut or the powdered medicinal substances, the following six different sieves are used:—

No. 1. That which has meshes with an internal diameter of 4 mm.

No. 2. That which has meshes with an internal diameter of 3 mm.

No. 3. That which has meshes with an internal diameter of 2 mm.

No. 4. That which has 10 meshes in a length of 1 cm.

No. 5. That which has 26 meshes in a length of 1 cm.

No. 6. That which has 40 meshes in a length of 1 cm.

There are the following three different degrees of fineness, both for the cut and the powdered medicinal substances:—

That which is '*coarse cut*' is the one passing through the sieve No. 1.

That which is '*medium cut*' is the one passing through the sieve No. 2.

That which is '*fine cut*' is the one passing through the sieve No. 3.

That which is '*in coarse powder*' is the one passing through the sieve No. 4.

That which is '*in medium powder*' is the one passing through the sieve No. 5.

That which is '*in fine powder*' is the one passing through the sieve No. 6.

In preparing the medicinal substances, coarse cut, medium cut, fine cut, or in coarse powder, the portion passing through the sieve No. 5 should be removed. But in preparing the preparations by exhausting the cut drugs, the fine portion should not be removed.

At the end of the Pharmacopœia there are lists of reagents and of volumetric solutions, and under each article of the latter the equivalents of the substances to be tested are given.

The Pharmacopœia has following tables attached to it as an appendix:—

Table 1. contains a list of medicines which should always be kept in every diepensary. Medicines of this class are indicated by the symbol O standing before their Latin names.

The table 2. contains a list of medicines which should be preserved separated from others, in a place which can be locked up, viz. the so-called poisonous medicines. Medicines of this class are indicated by the motto '*Preserve with special care*' under the article of their preservation.

The table 3. contains a list of medicines which should be preserved separated from others, viz. the so-called strong or powerful medicines. Medicines of this class are indicated by the motto '*Preserve with care*' in the article of their preservation.

The table 4. contains a list of medicines with their maximum doses for an adult. Physicians are not allowed to prescribe a medicine with a dose exceeding its maximum one, unless they draw special attention to it by putting an exclamation mark (!) under the quantity of that medicine in the prescription.

The table 5. contains symbols and atomic weights of the more important elements.

At the end of the Pharmacopœia, there are comparative table of the official and the popular names of medicines, by which they are commonly known, and also complete indices of Latin and Japanese names, and also their synonyma, arranged in the alphabetical order for the Latin names and in the *Iroha* order for the Japanese names.

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THE

PHARMACOPŒIA

OF

JAPAN

THE
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OF
JAPAN

O ACETANILIDUM. *Antifebrinum.*
Acetanilid. *Antifebrine.*

$C_8H_9NO = 135,12$

White, odorless, glistening, lamellar crystals, having a slightly pungent taste; soluble in 230 parts of water, and in about 22 parts of boiling water, showing a neutral reaction, easily soluble in alcohol, and in chloroform, soluble in ether. Melting point: 113-114°.

Boil 0,1 g of Acetanilid with 5 ccm of potassium hydroxide solution; the characteristic odor of aniline becomes noticeable, and on adding 2-3 drops of chloroform and heating the mixture, the disagreeable odor of isonitrile is evolved.

Boil 0,2 g of Acetanilid with 2 ccm of hydrochloric acid; a clear solution results, which, when mixed with 4 ccm of carbolic acid solution, and afterwards with chlorinated lime solution, acquires a dirty violet-blue color, which becomes blue for a long time, upon supersaturation with ammonia water.

A cold, saturated, aqueous solution of Acetanilid should not be affected by diluted ferric chloride solution.

0,1 g of Acetanilid should dissolve without coloration in 1 ccm of sulphuric acid; and no coloration should be produced on shaking 0,1 g of Acetanilid with 1 ccm of nitric acid.

On incineration, it should leave not more than 0,1 per cent. of solid residue.

Preserve it with care.

Maximum dose at a time: 0,3 g.
Maximum dose for a day: 1 g.

ACETONUM.

Acetone.

$C_3H_6O = 58,06$

A colorless, transparent, volatile liquid, having a characteristic odor, and burning with a luminous flame on ignition; clearly miscible in all proportions with water, alcohol, ether, and with chloroform.

Specific gravity: 0,795—0,798.

Acetone distils almost completely between 55—57°.

Evaporate 10 ccm of Acetone on a water bath; no residue should remain.

10 ccm of Acetone, to which 2-3 drops of phenolphthalein solution have been added, should require not more than 1 drop of normal potassium hydroxide volumetric solution to produce a permanent pink color.

Mix 20 ccm of Acetone with 3 drops of tenth-normal potassium permanganate volumetric solution; the pink tint so produced should not wholly disappear within 15 minutes.

ACETUM PYROLIGNOSUM CRUDUM.

Crude Wood Vinegar.

A brown liquid, having an odor resembling wood tar and acetic acid, and an acid, somewhat bitter taste. When kept for a long time, it separates a substance resembling wood tar.

Crude Wood Vinegar contains not less than 6 per cent. of pure acetic acid ($C_2H_4O_2 = 60,04$).

Dilute it with an equal volume of water, and filter; the filtrate should acquire only a pale blue color with potassium ferrocyanide solution, produce only an opalescence either with barium nitrate solution, or with silver nitrate solution, and produce no change with hydrogen sulphide water.

A mixture of 10 ccm of Crude Wood Vinegar and 10 ccm of normal potassium hydroxide volumetric solution should not react alkaline.

ACIDUM ACETICUM.

Acetic Acid.

A clear, colorless, volatile liquid, having acid odor and taste. Specific gravity: 1,041.

It contains 30 per cent. of pure acetic acid ($C_2H_4O_2 = 60,04$).

Dilute 1 volume of the acid with 5 volumes of water, and neutralize it with sodium hydroxide solution; the resulting solution produces a red color with ferric chloride solution.

When neutralized with sodium hydroxide solution, it should evolve no empyreumatic odor.

When mixed with an equal volume of sulphuric acid, it should not be colored; and on pouring carefully upon the mixture, after cooling, half its volume of ferrous sulphate solution, so as to form 2 layers, no brownish zone should be formed at the line of contact.

A mixture of 1 ccm of the acid and 3 ccm of stannous chloride solution should produce no dark color within 1 hour.

1 volume of the acid, diluted with 5 volumes of water, should not be affected by barium nitrate solution, silver nitrate solution, ammonia water, or by hydrogen sulphide water.

A mixture of 20 ccm of the acid and 1 ccm of patassium permanganate solution should not lose its pink tint within 30 minutes.

5 ccm of the acid should require for neutralization 26 ccm of normal potassium hydroxide volumetric solution (Indicator: Phenolphthalein solution).

ACIDUM ACETICUM DILUTUM.

Diluted Acetic Acid.

Acetic Acid	1 *pt.*
Distilled Water	4 *pts.*

Mix acetic acid with distilled water.

A clear, colorless liquid, having acid odor and taste.

It contains 6 per cent. of pure acetic acid ($C_2H_4O_2 = 60,04$).

The acid should conform to the tests for identity and purity given under *Acidum Aceticum.*

10 ccm of the acid should require for neutralization 10 ccm of normal potassium hydroxide volumetric solution (Indicator: Phenolphthalein solution).

ACIDUM ACETICUM GLACIALE.

Glacial Acetic Acid.

A clear, colorless, volatile liquid, with a pungent, acid odor, and a strong acid taste, and solidifying to a crystalline mass when cooled; miscible in all proportions with water, alcohol, and with ether.

Specific gravity: about 1,056–1,064. Congealing point: above 9°.

It contains not less than 96 per cent. of pure acetic acid ($C_2H_4O_2 = 60,04$).

Dilute 1 volume of the acid with 20 volumes of water, and neutralize it with sodium hydroxide solution; the resulting solution produces a red color with ferric chloride solution.

Dilute 1 volume of the acid with 2 volumes of water, and neutralize it with sodium hydroxide solution; no empyreumatic odor should be produced. When mixed with an equal volume of sulphuric acid, it should acquire no coloration; and on pouring carefully upon the mixture, after cooling, half its volume of ferrous sulphate solution, so as to form 2 layers, no brownish zone should be formed at the line of contact.

Dilute 1 volume of the acid with 2 volumes of water; 1 ccm of the resulting solution should produce no dark coloration with 3 ccm of stannous chloride solution within 1 hour.

1 volume of the acid, diluted with 20 volumes of water, should not be affected by barium nitrate solution, silver nitrate solution, ammonia water, or by hydrogen sulphide water.

Dilute 5 ccm of the acid with 15 ccm of water, and add 1 ccm of patassium permanganate solution; the solution should not lose its pink tint within 30 minutes.

Dilute 5 g of the acid with water to make it measure 50 ccm; 10 ccm of the solution should require for neutralization at least 16 ccm of normal potassium hydroxide volumetric solution (Indicator: Phenolphthalein solution).

Preserve it in glass-stoppered bottles.

O ACIDUM ACETYLSALICYLICUM.

Acetylsalicylic Acid.

$C_9H_8O_4=180,11$

A white, crystalline powder, or scales, almost odorless; slightly soluble in water, readily soluble in boiling water, alcohol, and in ether. Melting point: about 135°.

Boil 0,5 g of the acid with 10 ccm of sodium hydroxide solution for 2–3 minutes, and add to the cold, clear solution an excess of diluted sulphuric acid; a white precipitate is produced, which, after washing with water and drying, melts at 156–157°, and its aqueous solution is colored violet by ferric chloride solution. Boil the filtrate, separated from the precipitate, with alcohol and sulphuric acid; an odor of acetic ether is produced.

0,1 g of the acid should dissolve almost without coloration in 1 ccm of sulphuric acid.

Dissolve 0,1 g of the acid in 5 ccm of alcohol, and dilute the solution with 20 ccm of water; the solution should immediately produce no violet color with 1 drop of ferric chloride solution.

On incineration, the acid should leave not more than 0,1 per cent. of solid residue.

ACIDUM ARSENICOSUM.

Arsenous Acid.

$As_2O_3 = 197,92$

White, porcelain-like or glassy masses, or a white powder, odorless and tasteless; slowly but completely soluble in 15 parts of boiling water. When carefully heated in a test tube, it sublimes in tetrahedral or octahedral crystals with glassy lustre; when heated on charcoal, it volatilizes with an alliaceous odor.

The acid contains not less than 99 per cent. of pure arsenous acid.

Its aqueous solution, mixed with hydrochloric acid, produces, with hydrogen sulphide water, a yellow precipitate, soluble in ammonia water.

On warming, 1 part of the acid should dissolve in 10 parts of ammonia water, and the solution, diluted with 10 parts of water, should produce no yellow color with an excess of hydrochloric acid.

When heated in a glass tube, it should sublime without leaving any solid residue, or leaving, if any, not more than 0,1 per cent. of the latter.

Dissolve 0,5 g of the acid together with 3 g of sodium bicarbonate in boiling water, and dilute the cold solution with water to make it measure 100 ccm; 10 ccm of the solution should decolorize at least 10 ccm of tenth-normal iodine volumetric solution (Indicator: Starch solution).

Preserve it with special care.

Maximum dose at a time: 0,005 g.
Maximum dose for a day: 0,015 g.

ACIDUM BENZOÏCUM.

Benzoic Acid.

$C_7H_6O_2 = 122{,}08$

White or yellowish leaflets, or needles, subliming when heated; soluble in alcohol, ether, chloroform, and in sodium hydroxide solution, sparingly soluble in water, but largely soluble in boiling water.

Melting point: about 120°.

An aqueous solution of the acid, almost neutralized with potassium hydroxide solution, produces a light reddish-brown precipitate with ferric chloride solution.

When heated, the acid should volatilize entirely, or leaving, if any, not more than a slight quantity of solid residue.

Gently warm 1 part each of the acid and potassium permanganate together with 10 parts of water in a loosely-stoppered test tube for a few minutes, and allow it to cool; on removing the stopper, no odor resembling benzaldehyde should be perceptible.

Mix 0,2 g of the acid and 0,3 g of calcium carbonate with a little water, dry the mixture, and incinerate it. Dissolve the residue in nitric acid, and make up to 10 ccm by adding water; the solution should produce no more than an opalescence with silver nitrate solution.

Preserve it protected from light.

O ACIDUM BORICUM.

Boric Acid.

$H_3B O_3 = 62,02$

Colorless scales, of a pearly lustre, or a white, crystalline powder; slowly soluble in 25 parts of water, soluble in 3 parts of boiling water, 25 parts of alcohol, and in glycerine.

When heated, it swells up, then melts, and, on cooling, it solidifies to a colorless, transparent, glassy substance.

Turmeric paper, moistened with an aqueous solution of the acid, to which a little hydrochloric acid has been added, becomes brownish-red on drying, changing to greenish-black on pouring a small quantity of ammonia water.

An alcoholic solution of the acid burns, when ignited, with a flame tinged with green.

An aqueous solution (1 : 50) of the acid should neither be colored by hydrogen sulphide water, nor produce any more than an opalescence with barium nitrate solution, silver nitrate solution, and with ammonium oxalate solution; the same solution, after adding ammonia water, should not be affected by sodium phosphate solution.

50 ccm of the same solution, to which hydrochloric acid has been added, should not be immediately colored blue by the addition of 0,5 ccm of potassium ferrocyanide solution.

ACIDUM CAMPHORICUM.

Camphoric Acid.

$C_{10}H_{16}O_4 = 200,18$

White, almost odorless leaflets; soluble in about 150 parts of water, and in 20 parts of boiling water, showing an acid reaction, readily soluble in alcohol and in ether, somewhat difficultly soluble in chloroform. Melting point: 186°.

Dissolve 7,5 g of the acid in absolute alcohol to make it measure 50 ccm at ordinary temperature; optical rotation (αD 20°) of the resulting solution is about +7°.

Mix the acid with quick lime and heat; an odor resembling peppermint is perceptible.

A cold, saturated, aqueous solution of the acid should not be affected by silver nitrate solution, or by barium nitrate solution.

Mix 2 ccm of the same solution with 2 ccm of sulphuric acid, and, after cooling, pour 1 ccm of ferrous sulphate solution upon it, so as to form 2 layers; no brownish zone should be formed at the line of contact.

When heated, the acid should votatilize completely in form of a white vapor, of a pungent odor, or should leave, if any, not more than 0,1 per cent. of solid residue.

0,4 g of the dried acid, dissolved in 20 ccm of alcohol, should require for neutralization 40 ccm of tenth-normal potassium hydroxide volumetric solution (Indicator: Phenolphthalein solution).

O ACIDUM CARBOLICUM.

Carbolic Acid.

$C_6H_6O = 94,08$

Long, colorless needles, or a white, crystalline mass, having a characteristic odor; soluble in 15 parts of water, forming a clear solution, easily soluble in alcohol, ether, chloroform, glycerine, carbon disulphide, and in sodium hydroxide solution. Congealing point: 39–41°. Boiling point: 178–182°.

A solution of 20 parts of the acid in 10 parts of alcohol acquires a dirty green color with 1 part of ferric chloride solution. Dilute the colored solution with water to make it measure 1000 parts;

it changes to a somewhat permanent, beautiful, violet color.

A solution of 1 part of the acid in 50000 parts of water produces a white, curdy precipitate with bromine water.

Mix 10 parts of the acid with 1 part of water; a clear liquid is obtained, which becomes turbid by adding still more water, and clear again, when the water added reaches 150 parts.

On incineration, the acid should leave not more than 0,1 per cent. of solid residue.

Preserve it with care, in well-closed containers, protected from light.

Maximum dose at a time: 0,1 g.
Maximum dose for a day: 0,3 g.

ACIDUM CARBOLICUM LIQUEFACTUM.

Liquefied Carbolic Acid.

Carbolic Acid	10 *pts.*
Distilled Water	1 *pt.*

Melt carbolic acid by gentle heat, and mix distilled water with it.

A colorless, or slightly reddish, clear liquid, having the odor of carbolic acid. Specific gravity: 1,068–1,071.

Add 2,3 ccm of water to 10 ccm of the acid at 15°; the latter should not become turbid, but be rendered so by adding 8–10 drops of water, and the turbid mixture should become clear again by adding 135–140 ccm of water.

Preserve it with care, protected from light.

O ACIDUM CARBOLICUM PRO DESINFECTIONE.

Carbolic Acid for Desinfection.

Long needles, or a crystalline mass, colorless, or almost white, or slightly reddish, having a characteristic odor; soluble in alcohol, ether, chloroform, and in glycerine. Congealing point: above 34°. Boiling point: about 177°.

An aqueous solution of the acid acquires a violet color with ferric chloride solution, and produces a white, curdy precipitate with bromine water.

1 volume of the acid, melted, should dissolve almost clearly in 4 volumes of sodium hydroxide solution.

10 parts of the acid produce a clear solution with 1 part of water, which becomes turbid by adding still more water, and almost clear again, when the water added reaches 150 parts.

On incineration, the acid should leave not more than 0,1 per cent. of solid residue.

Preserve it with care, protected from light.

ACIDUM CHROMICUM.

Chromic Acid.

$CrO_3=100,0$

Dark brownish-red crystals, of a steel-like lustre, deliquescent in the air, and easily soluble in water.

When mixed with alcohol or some other easily oxdizable substances, explosion or combustion may occur.

When heated, it melts and evolves oxygen, changing to dark green in color; when heated with hydrochloric acid, chlorine is evolved.

An aqueous solution (1:100) of the acid, after the addition of hydrochloric acid, should produce no more than a slight opalescence with barium nitrate solution.

The residue, obtained by heating 0,2 g of the acid, should contain no substance soluble in water.

Preserve it with care, in glass-stoppered bottles.

ACIDUM CITRICUM.

Citric Acid.

$C_6H_8O_7+H_2O=210,11$

Colorless, transparent crystals, which melt on heating and then carbonize, emitting a pungent odor; soluble in 0,6 parts of water, 1,5 parts of alcohol, and in about 50 parts of ether.

On adding 40–50 ccm of lime water to 1 ccm of its aqueous solution (1:10), it remains clear, but, on boiling for 1 minute, it produces a white, curdy precipitate, which, on cooling, redissolves entirely within 3 hours.

Mix 1 g of the acid with 10 ccm of sulphuric acid, and heat the mixture on a water bath for 1 hour; the resulting solution should acquire only a yellow, but not a brown color.

An aqueous solution (1:10) of the acid should produce no more than an opalescence with barium nitrate solution; the same solution, nearly neutralized with ammonia water, should remain almost clear on the addition of ammonium oxalate solution.

Dissolve 5 g of the acid in 10 ccm of water, and nearly neutralize it with ammonia water; the solution should be not more than faintly colored by hydrogen sulphide water.

On incineration, the acid should leave not more than 0,1 per cent. of solid residue.

ACIDUM DIAETHYLBARBITURICUM.

Diethyl-barbituric Acid. *Diethylmalonylurea.*

$C_8H_{12}N_2O_3=184,16$

Colorless leaflets, or a white, crystalline powder, having no odor, and a slightly bitter taste, and melting at 188–191°; soluble in

170 parts of water, and in 17 parts of boiling water, showing an acid reaction, easily soluble in alcohol, ether, and in sodium hydroxide solution, but difficultly soluble in chloroform.

On melting 0,2 g of the acid with about 3 g of potassium hydroxide, ammonia is evolved, and on dissolving the cold residue in water and acidifying it with diluted sulphuric acid, carbon dioxide and a rancid, cheesy odor is evolved.

Add 1 drop of nitric acid to 2 ccm of its cold, saturated, aqueous solution, and then add, drop by drop, the solution, obtained by dissolving 1 part of yellow mercuric oxide in 2,5 parts of nitric acid; a white, curdy precipitate is produced.

A cold, saturated, aqueous solution of the acid should not be affected by bromine water, iodine solution, barium nitrate solution, Mayer's reagent, or by silver nitrate solution.

0,1 g of the acid should dissolve without coloration in 1 ccm of sulphuric acid, and the acid should not be colored on shaking with nitric acid.

On incineration, the acid should not carbonize and leave not more than 0,1 per cent. of solid residue.

Preserve it with care.

Maximum dose at a time: 0,5 g.
Maximum dose for a day: **1** g.

ACIDUM GALLICUM.

Gallic Acid.

$C_7H_6O_5 + H_2O = 188,1$

White or nearly yellowish needles, with a silky lustre; having no odor and an astringent and slightly acidulous taste; soluble in 100 parts of water, and in 3 parts of boiling water, showing an acid reaction, soluble in 6 parts of alcohol, and in 12 parts of glycerine, but difficultly soluble in ether.

A cold, saturated, aqueous solution of the acid reduces ammoniacal silver nitrate solution, and produces a bluish-black precipitate with ferric chloride solution.

A cold, saturated, aqueous solution of the acid should produce no precipitate with gelatin solution, or with albumen solution.

A boiling aqueous solution (1 : 20) of the acid should be colorless or not more than faintly yellowish, and the same solution, to which hydrochloric acid has been added, should not be rendered turbid by barium nitrate solution.

When dried at 100°, the acid should lose not more than 10 per cent. of its weight.

On incineration, the acid should leave not more than 0,1 per cent. of solid residue.

Preserve it in well-stoppered bottles, protected from light.

ACIDUM HYDROCHLORICUM.

Hydrochloric Acid.

A clear, colorless liquid, having a pungent odor, and completely volatilizing on evaporation. Specific gravity: 1,152.

The acid contains 30 per cent. of hydrogen chloride ($HCl = 36{,}47$).

The acid yields, with silver nitrate solution, a white, curdy precipitate, which is entirely soluble in ammonia water; and when warmed with manganese dioxide, the acid evolves chlorine.

A mixture of 1 ccm of the acid and 3 ccm of stannous chloride solution should acquire no dark color within 1 hour.

Dilute 1 volume of the acid with 6 volumes of water, and nearly neutralize it with ammonia water; the solution should not be immediately colored blue on the addition of zinc iodide and starch solution, nor should it be affected by hydrogen sulphide water, or by barium nitrate solution within 5 minutes, even after the addition of iodine solution, until it acquires a light yellow color.

Dilute 1 volume of the acid with 12 volumes of water; 10 ccm of the solution should not be immediately colored blue by the addition of 0,5 ccm of potassium ferrocyanide solution.

3 ccm of the acid, diluted with 15 ccm of water, should require for neutralization 28,4 ccm of normal potassium hydroxide volumetric solution (Indicator: Methyl orange solution).

Preserve it with care, in glass-stoppered bottles.

○ ACIDUM HYDROCHLORICUM DILUTUM.

Diluted Hydrochloric Acid.

Hydrochloric Acid	1 *pt.*
Distilled Water........................	2 *pts.*

Mix them.

A clear, colorless liquid. Specific gravity: 1,05.

It contains about 10 per cent. of hydrogen chloride ($HCl = 36,47$).

It should conform to the tests for identity and purity given under *Acidum hydrochloricum.*

10 ccm of the acid, diluted with an equal volume of water, should require for neutralization 28,8 ccm of normal potassium hydroxide volumetric solution (Indicator: Methyl orange solution).

Preserve it in glass-stoppered bottles.

ACIDUM HYDROCYANICUM DILUTUM.

Diluted Hydrocyanic Acid.

A clear, colorless liquid, of an odor resembling benzaldehyde, and having a weak acid reaction. Specific gravity: 0,997.

It contains 2 per cent. of hydrogen cyanide ($HCN = 27,02$).

Supersaturate the acid with sodium hydroxide solution, and add to it ferrous sulphate solution and 2–3 drops of ferric chloride solution; it acquires a dark blue color with an excess of hydrochloric acid.

The precipitate, produced by mixing silver nitrate solution with the acid, and completely separated from the supernatant liquid, should entirely dissolve on boiling with a mixture of equal volumes of sulphuric acid and water.

The acid, mixed with 1–2 drops of nitric acid, should produce no more than a slight turbidity with barium nitrate solution.

On evaporation, 5 ccm of the acid should leave no weighable solid residue.

Dilute 5 ccm of the acid with 90 ccm of water, and add to it 2 ccm of potassium hydroxide solution; the solution should require 18,5 ccm of tenth-normal silver nitrate volumetric solution, on adding it, drop by drop with agitation, in order to produce a permanent, whitish turbidity.

Preserve it with special care, protected from light.

Maximum dose at a time: 0,1 g.
Maximum dose for a day: 0,3 g.

ACIDUM LACTICUM.

Lactic Acid.

A clear, colorless or slightly yellowish, syrupy liquid, nearly odorless, and having a purely acid taste; miscible in all proportions with water, alcohol, and with ether. Specific gravity: 1,21–1,22.

The acid contains about 75 per cent. of pure lactic acid ($C_3H_6O_3 = 90{,}06$).

When warmed with patassium permanganate solution, it evolves an odor of acetaldehyde, and when heated strongly, it carbonizes and burns with a luminous flame.

On warming, it should evolve no odor resembling fatty acids, and on pouring it upon an equal volume of sulphuric acid, so as to form 2 layers, no colored zone should develop within 15 minutes at the line of contact.

Dilute 1 part of the acid with 9 parts of water; the resulting solution should not be affected by hydrogen sulphide water, barium nitrate solution, silver nitrate solution, ammonium oxalate solution, or by an excess of lime water, even on heating.

Add 1 ccm of the acid, drop by drop, to 2 ccm of ether; it should not be rendered turbid.

On incineration, the acid should leave not more than 0,1 per cent. of solid residue.

Dilute 5 g of the acid with water to make it measure 50 ccm; 20 ccm of the solution should require for neutralization at least 16,6 ccm of normal potassium hydroxide volumetric solution (Indicator: Phenolphthalein solution).

ACIDUM NITRICUM.

Nitric Acid.

A clear, colorless liquid, completely votatilizing on evaporation. Specific gravity: 1,153.

It contains 25 per cent. of pure nitric acid ($HNO_3 = 63,02$).

When warmed with copper filings, it dissolves the latter, and produces a blue solution, with the evolution of yellowish-red fumes.

Mix 1 volume of the acid with 5 volumes of water, and almost neutralize it with ammonia water; the resulting solution should not be affected by hydrogen sulphide water, and should produce no more than a slight opalescence with barium nitrate solution, even after standing for 5 minutes.

1 volume of the acid, diluted with 5 volumes of water, should not be affected by silver nitrate solution.

Dilute 1 volume of the acid with 2 volumes of water, introduce a small piece of pure zinc, and shake the mixture with chloroform; the latter should not be colored violet.

Dilute 1 volume of the acid with 9 volumes of water; 10 ccm of the solution should not be immediately colored blue on the addition of 0,5 ccm of potassium ferrocyanide solution.

5 ccm of the acid, diluted with 25 ccm of water, should require for neutralization 22,9 ccm of normal patassium hydroxide volumetric solution (Indicator: Methyl orange solution).

Preserve it with care, in glass-stoppered bottles.

ACIDUM NITRICUM CRUDUM.

Crude Nitric Acid.

A clear, colorless or light yellow liquid, evolving red fumes in the air, and volatilizing without leaving any residue on evaporation. Specific gravity: 1,38–1,40.

It contains about 61–65 per cent. of pure nitric acid ($HNO_3=63,02$)

The acid dissolves copper filings, evolving yellowish-red fumes, and produces a green solution, which changes to blue by diluting with water.

Preserve it with care.

ACIDUM NITRICUM DILUTUM.

Diluted Nitric Acid.

Nitric Acid	10 *pts.*
Distilled Water	15 *pts.*

Mix them.

A clear, colorless liquid. Specific gravity: 1,056.

It contains 10 per cent. of pure nitric acid ($HNO_3=63,02$).

The acid should conform to the tests for identity and purity given under *Acidum nitricum.*

10 ccm of the acid, diluted with an equal volume of water, should require for neutralization 16,8 ccm of normal potassium hydroxide volumetric solution (Indicator: Methyl orange solution).

Preserve it in glass-stoppered bottles.

ACIDUM NITRICUM FUMANS.

Fuming Nitric Acid.

A clear, reddish-brown liquid, evolving suffocating, yellowish-red fumes in the air, and volatilizing completely on evaporation. Specific gravity: 1,486–1,500.

It contains about 86 per cent. of pure nitric acid ($HNO_3=63{,}02$).

Preserve it with care, in glass-stoppered bottles, in a cool place.

ACIDUM OLEINICUM.

Oleic Acid.

$C_{18}H_{34}O_2=282{,}36$

A light yellow or brownish-yellow, oily liquid, having faint, characteristic odor and taste, absorbing oxygen and becoming gradually darker on exposure to the air. Specific gravity: about 0,9.

The acid is insoluble in water, soluble in alcohol, showing a slightly acid reaction, and soluble in ether, chloroform, and in fixed or volatile oils. When cooled to about 4°, it becomes semi-solid, and on further cooling, it congeals to a whitish, solid mass.

When heated to about 95°, it evolves acrid vapors, and, at a higher temperature, it is completely decomposed.

A mixture of equal parts of oleic acid and alcohol should form a clear solution without separating any oily drops on its surface.

Heat 1 g of the acid with 20 ccm of alcohol, add 2 drops of phenolphthalein solution, and then add concentrated sodium hydroxide solution (1 : 4), drop by drop, to the mixture until it acquires a permanent red color. Add acetic acid to it until the red color just disappears, and filter; 10 ccm of the clear filtrate should be rendered not more than faintly turbid when mixed with 10 ccm of ether and 1 ccm of lead acetate solution.

Preserve it in well-stoppered bottles.

ACIDUM PHOSPHORICUM.

Phosphoric Acid.

A clear, colorless, odorless liquid. Specific gravity: 1,12.

It contains 20 per cent. of pure phosphoric acid ($H_3PO_4 = 98{,}06$).

Phosphoric Acid, neutralized with sodium carbonate solution, produces, with silver nitrate solution, a yellow precipitate, soluble in nitric acid and in ammonia water.

A mixture of 1 ccm of the acid and 3 ccm of stannous chloride solution should acquire no dark color within 1 hour.

The acid should not be affected by silver nitrate solution, even on warming, nor should it be affected by hydrogen sulphide water. 1 volume of the acid, diluted with 3 volumes of water, should not be rendered turbid by barium nitrate solution, nor should it be affected by an excess of ammonia water, nor by ammonium oxalate solution after supersaturation with ammonia water.

1 volume of the acid should remain clear when mixed with 4 volumes of alcohol.

Mix 2 ccm of the acid with 2 ccm of sulphuric acid, and pour 1 ccm of ferrous sulphate solution upon the cold mixture, so as to form 2 layers; no brownish zone should be formed at the line of contact.

5 ccm of the acid, mixed with 10 ccm of cold, saturated, aqueous

solution of sodium chloride, should require for neutralization 22,9 ccm of normal potassium hydroxide volumetric solution (Indicator: Phenolphthalein solution).

Preserve it in glass-stoppered bottles.

ACIDUM PHOSPHORICUM DILUTUM.

Diluted Phosphoric Acid.

Phosphoric Acid	1 *pt.*
Distilled Water	1 *pt.*

Mix them.

A clear, colorless liquid. Specific gravity: 1,057.

Diluted Phosphoric Acid contains 10 per cent. of pure phosphoric acid ($H_3PO_4=98,06$).

The acid should conform to the tests for identity and purity given under *Acidum phosphoricum.*

A mixture of 10 ccm each of the acid and cold, saturated, aqueous solution of sodium chloride should require for neutralization 21,5 ccm of normal potassium hydroxide volumetric solution (Indicator: Phenolphthalein solution).

Preserve it in glass-stoppered bottles.

ACIDUM PICRINICUM.

Picric Acid.

$C_6H_3N_3O_7=229,08$

A light yellow, lustrous leaflets, or needles, having no odor and an intensely bitter taste; soluble in 86 parts of water, forming a bright yellow solution and showing an acid reaction, somewhat soluble in boiling water, alcohol, and in ether; it burns out with explosion when heated strongly. Melting point: 122°.

An alcoholic solution of the acid imparts a bright yellow color to white wool or silk; and its warm, saturated, aqueous solution produces a dark red color with potassium cyanide solution (1 : 2).

When dissolved in petroleum benzin, it should form an almost colorless, clear solution.

When incinerated carefully, the acid should leave not more than 0,1 per cent. of solid residue.

Preserve it with care.

O ACIDUM SALICYLICUM.

Salicylic Acid.

$C_7H_6O_3 = 138{,}08$

White needles, or a light, white, crystalline powder, without odor, and having a sweetish, acid, somewhat acrid taste; soluble in about 500 parts of water, and in 15 parts of boiling water, showing an acid reaction, easily soluble in alcohol, ether, chloroform, and in fixed oils.

Melting point: about 157°.

When heated carefully, the acid sublimes undecomposed, but, when heated rapidly, it volatilizes with the odor of carbolic acid.

An aqueous solution of the acid acquires, with ferric chloride solution, a permanent bluish-violet color, which changes to violet-red when highly diluted.

Add 5 ccm of sulphuric acid to 1 g of the acid; the solution should produce no more than a slightly yellow color.

0,5 g of the acid should dissolve clearly in 10 ccm of sodium carbonate solution (1 : 10) at ordinary temperature. Agitate the solution with ether, and allow the ethereal solution to evaporate spontaneously; the residue, if any, should be very slight and free from the odor of carbolic acid.

The solution, obtained by dissolving 1 part of the acid in 9 parts of alcohol, should leave, on evaporation at ordinary temperature, a purely white residue; the same solution, after the addition of a little nitric acid, should produce no more than an opalescence with silver nitrate solution.

On incineration, the acid should leave not more than 0,1 per cent. of solid residue.

ACIDUM STEARINICUM.

Stearic Acid.

$C_{18}H_{36}O_2 = 284,38$

A white, crystalline powder, unctuous to the touch, or a solid mass, with granular and crystalline fractures; almost odorless and tasteless; insoluble in water, soluble in boiling alcohol, and in ether. Melting point: 60–65°.

Dissolve the acid in boiling alcohol, neutralize it with sodium hydroxide solution, and evaporate; the residue should be insoluble in petroleum benzin, or only slightly soluble in it.

Boil 1 g of the acid together with 1 g of sodium carbonate and 30 ccm of water in a large flask; an almost clear solution should be obtained.

n incineration, the acid should leave not more than 0,1 per cent. o solid residue.

ACIDUM SULFURICUM.

Sulphuric Acid.

A clear, colorless, odorless liquid, of oily consistence, completely volatilizing on evaporation. Specific gravity: 1,836–1,840.

It contains 94–98 per cent. of pure sulphuric acid ($H_2SO_4 = 98,08$).

When diluted with water, it yields, with barium nitrate solution, a white precipitate, insoluble in diluted acids.

1 ccm of a cold mixture of 1 volume of the acid and 2 volumes of water should acquire no dark color with 3 ccm of stannous chloride solution within 1 hour.

A mixture of 1 volume of the acid and 5 volumes of alcohol should not become turbid for a long time.

Add 3–4 drops of potassium permanganate solution to 10 ccm of a cold solution, obtained by diluting 1 volume of the acid with 5 volumes of water; an immediate decolorization should not take place.

Dilute 1 volume of the acid with 19 volumes of water; the resulting solution should not be affected by silver nitrate solution, and 10 ccm of the solution should not at once acquire a blue color with 0,5 ccm of potassium ferrocyanide solution. The same diluted solution, nearly neutralized with ammonia water, should not be affected by hydrogen sulphide water.

Pour 1 ccm of ferrous sulphate solution upon 2 ccm of the acid, so as to form 2 layers; no brownish zone should be formed at the line of contact.

Pour 2 ccm of hydrochloric acid, in which 1–2 small pieces of crystallized sodium sulphite have been dissolved, upon 2 ccm of the acid, so as to form 2 layers; neither reddish zone should be formed at the line of contact, nor red precipitate shuld be produced on warming.

Dilute 5 g of the acid with water to make it measure 50 ccm; 10 ccm of the resulting cold solution should require for neutralization 19,2–20 ccm of normal potassium hydroxide volumetric solution (Indicator: Methyl orange solution).

Preserve it with care, in glass-stoppered bottles.

ACIDUM SULFURICUM CRUDUM.

Crude Sulphuric Acid.

A clear, colorless or brownish liquid, of oily consistence. Specific gravity: not less than 1,825.

It contains not less than 91 per cent. of pure sulphuric acid ($H_2SO_4=98,08$).

Preserve it with care, in glass-stoppered bottles.

ACIDUM SULFURICUM DILUTUM.

Diluted Sulphuric Acid.

Sulphuric Acid	1 *pt.*
Distilled Water	8 *pts.*

Pour the acid gradually, with constant stirring, into the distilled water, and, after cooling, dilute it with more distilled water to make its specific gravity 1,069.

A clear, colorless liquid, containing 10 per cent. of pure sulphuric acid ($H_2SO_4=98,08$).

The acid should conform to the tests for identity and purity given under *Acidum sulfuricum.*

10 ccm of the acid, diluted with an equal volume of water, should require for neutralization 21,8 ccm of normal potassium hydroxide volumetric solution (Indicator: Methyl orange solution).

Preserve it in glass-stoppered bottles.

O ACIDUM TANNICUM.

Tannic Acid.

A white or yellowish, light, amorphous powder, or almost colorless, glistening, porous, scaly mass, having a faint, characteristic odor and a strongly astringent taste; soluble in 5 parts of water, showing an acid reaction, also soluble in 2 parts of alcohol, and in glycerin, but insoluble in pure chloroform, or in benzene.

An aqueous solution (1 : 5) of the acid produces a precipitate with sulphuric acid or a saturated solution of sodium chloride, and also yields, with ferric chloride solution, a bluish-black precipitate, which redissolves in sulphuric acid.

Mix 2 ccm of an aqueous solution (1 : 5) of the acid with 2 ccm of alcohol; the resulting solution should remain clear, nor should it become turbid on adding 1 ccm of ether.

When dried at 100°, the acid should lose not more than 12 per cent. of its weight.

On incineration, 5 g of the acid should leave not more than 0,01 g of solid residue. Dissolve the residue in 2 ccm of acetic acid, dilute the solution with 8 ccm of water, and filter; 5 ccm of the filtrate should produce no more than a slight turbidity with hydrogen sulphide water.

Preserve it in well-stoppered, amber-colored bottles.

O ACIDUM TARTARICUM.

Tartaric Acid.

$C_4H_6O_6 = 150,07$

Colorless, translucent prisms, or a white, crystalline powder, odorless, permanent in the air; soluble in 1 part of water, 4 parts of alcohol, and in 250 parts of ether, but almost insoluble in chloroform, or in benzene. On ignition, it produces an odor resembling burning sugar.

An aqueous solution (1 : 3) of the acid yields, with potassium acetate solution, a crystalline precipitate, and, with an excess of lime water, a flocculent precipitate, which changes gradually into a crystalline one and is soluble in ammonium chloride solution and in sodium hydroxide solution; the latter solution produces a gelatinous precipitate on boiling, which redissolves on cooling.

An aqueous solution (1 : 10) of the acid should produce no more than a slight turbidity with barium nitrate solution; the same solution, nearly neutralized with ammonia water, should not be affected by ammonium oxalate solution, or by calcium sulphate solution.

Dissolve 5 g of the acid in 10 ccm of water, and nearly neutralize it with ammonia water; the resulting solution should be not more than slightly colored by hydrogen sulphide water.

On incineration, the acid should leave not more than 0,1 per cent. of solid residue.

ACIDUM TRICHLORACETICUM.

Trichloracetic Acid.

$C_2HCl_3O_2 = 163,4$

Colorless, deliquescent crystals, having a slightly pungent odor; soluble in water, showing a strongly acid reaction, easily soluble in alcohol, and in ether. Melting point: about 55°. Boiling point: about 195°.

The acid volatilizes completely on heating, and leaves no residue.

When 1 g of the acid is heated with 3 ccm of potassium hydroxide solution, it evolves the odor of chloroform.

10 ccm of an aqueous solution (1 : 10) of the acid should produce no more than a slight opalescence with 2 drops of tenth-normal silver nitrate volumetric solution.

Dissolve 0,5 g of the acid, previously dried to constant weight in an exsiccator, in 20 ccm of water; the resulting solution should require for neutralization not more than 30,5 ccm of tenth-normal potassium hydroxide volumetric solution (Indicator: Phenolphthalein solution).

Preserve it with care, in glass-stoppered bottles.

ADEPS BENZOATUS.

Benzoinated Lard.

Hog's Lard	50 *pts.*
Benzoin, *in fine powder*	1 *pt.*

Mix them, then melt the mixture on a water bath, continue the heat for 1 hour, stirring frequently, and then filter it.

ADEPS LANAE ANHYDRICUS.

Anhydrous Wool Fat.

The purified fat of the sheeps' wool, freed from water.

A light yellow, unctuous mass, almost odorless; soluble in ether, chloroform, petroleum benzin, and in boiling absolute alcohol, but insoluble in water; not losing its ointment-like consistence, even after being mixed with twice its weight of water. Melting point: about 40°.

A solution (1 : 50) of the fat in chloroform, when carefully poured on sulphuric acid, so as to make 2 layers, gradually produces, at the line of contact, a brownish-red zone, which becomes very distinct after about 24 hours.

A solution of 2 g of the fat in 10 ccm of ether should remain colorless on the addition of 2 drops of phenolphthalein solution, and acquire a red coloration on the addition of 0,1 ccm of tenth-normal potassium hydroxide volumetric solution.

Melt 10 g of the fat with 50 ccm of water on a water bath, with constant stirring; on cooling, there should result a light yellow, fatty layer and a lower, clear, aqueous layer of neutral reaction, which leaves no glycerin on evaporation, and, when heated with lime water, emits no alkaline vapors. To 10 ccm of the same aqueous solution, previously filtered, add 2 drops of potassium permanganate solution; the red coloration should not disappear within 10 minutes.

Boil 1 g of the fat with 20 ccm of absolute alcohol, filter the solution after cooling, and to the filtrate add an alcoholic solution (1 : 20) of silver nitrate; the solution, even if rendered turbid at first, should become clear again on warming, or leave no more than a slight opalescence.

When dried at 100°, it should lose not more than 1 per cent. of its weight.

On incineration, it should leave not more than 0,1 per cent. of solid residue, which should not turn a moistened red litmus paper blue.

O ADEPS LANAE CUM AQUA.

Hydrous Wool Fat.

Anhydrous Wool Fat	75 *pts.*
Distilled Water	25 *pts.*

Mix them.

Yellowish-white, ointment-like masses, almost odorless. When warmed on a water bath, it melts and separates a clear aqueous and an oily layer.

Dry it by heating and stirring on a water bath; the fat thus obtained should conform to the tests for identity and purity under *Adeps Lanae anhydricus*.

When dried at 100°, it should lose not more than 26 per cent. of its weight.

ADEPS SUILLUS.

Hog's Lard.

The fat of the fresh, cleaned great omentum and fat-tissue, which surrounds the kidney, of the healthy hog Sus scrofa *L.*, obtained by melting out and removing water.

A white, soft, homogeneous mass, with a faint characteristic odor, free from rancidity; it melts at 43–51,5° to a clear liquid, which is colorless in a layer not thicker than 1 cm. Iodine value: 46–80. Degrees of acidity: not more than 2.

Boil 2 parts of the lard with a mixture of 3 parts of potassium hydroxide solution and 2 parts of alcohol until it becomes clear, and then add 50 parts of water and 10 parts of alcohol; the solution should produce no more than a slight opalescence.

Dissolve 0,05 g of silver nitrate in a mixture of 3 ccm of ether, 12 ccm of alcohol and 2 drops of diluted nitric acid, add this solution to 5 g of Hog's Lard in a flask, and heat for 15 minutes on a water bath under reflux condenser; neither brown nor black color should be produced.

AETHER.

Ether.

$C_4H_{10}O = 74,1$

A clear, colorless, highly volatile and inflammable liquid, of neutral reaction, having characteristic odor and taste; slightly soluble in water, and miscible in all proportions with alcohol, and with fixed oils. Specific gravity: 0,72. Boiling point: 35°.

When poured upon a filter paper and allowed to evaporate spontaneously, it should leave no odor; 10 ccm of Ether, when evaporated on a water bath, should leave no residue.

Allow 5 ccm of Ether to evaporate spontaneously in a dish; a blue litmus paper should not be turned red, when placed in the moist interior.

Pour 20 ccm of Ether upon about 5 g of potassium hydroxide, freshly broken into fragments in size of a pea, and set the mixture aside, tightly closed and protected from light; neither the potassium hydroxide nor the ether should be colored within 30 minutes.

Mix 10 volumes of Ether with 1 volume of potassium iodide solution in a partially filled, well-stoppered flask, and set it aside with frequent shaking, protected from light; no color should develop in either liquid within 1 hour.

Preserve it in well-stoppered bottles, in a cool dark place.

AETHER ACETICUS.

Acetic Ether.

$C_4H_8O_2=88,08$

A clear, colorless, volatile liquid, having a characteristic, refreshing, cooling fragrance; miscible in all proportions with alcohol, ether, and with chloroform. Specific gravity: 0,900–0,906. Boiling point: 74–77°.

Acetic Ether should not at once redden a blue litmus paper.

When poured upon a filter paper and allowed to evaporate spontaneously, no foreign, ethereal odor should be noticeable; when evaporated on a water bath, it should leave no residue.

Pour it carefully upon an equal volume of sulphuric acid, so as to form 2 layers of liquids; no colored zone should be produced at the line of contact within 15 minutes.

Shake it vigorously with an equal volume of water; the latter should increase not more than one-tenth of its original volume.

Preserve it in well-stoppered bottles, in a cool place.

O AETHER PRO NARCOSI.

Narcotic Ether.

$C_4H_{10}O=74,1$

A clear, colorless, highly volatile and inflammable liquid, of neutral reaction, having characteristic odor and taste; slightly soluble in water, miscible in all proportions with alcohol, and with fixed oils. Specific gravity: 0,72. Boiling point: 35°.

When poured upon a filter paper and allowed to evaporate spontaneously, it should leave no odor, and when evaporated on a water bath, it should leave no residue.

Allow 20 ccm of Narcotic Ether to evaporate spontaneously in a dish; a blue litmus paper should neither be bleached nor be turned red on being placed in the moist interior.

Pour 20 ccm of Narcotic Ether upon about 5 g of potassium hydroxide, freshly broken into fragments in size of a pea, and set the mixture aside, tightly closed and protected from light; neither the potassium hydroxide nor the ether should be colored within 6 hours.

Mix 10 volumes of Narcotic Ether with 1 volume of potassium iodide solution in a partially filled, well-stoppered flask, and set it aside with frequent shaking, protected from light; no color should develop in either liquid within 3 hours.

Preserve it in small, amber-colored, partially filled, well-stoppered bottles, in a cool dark place.

AETHYLIUM BROMATUM.

Ethyl Bromide.

$C_2H_5Br=108,97$

A colorless, clear, volatile, highly refractive liquid, having a neutral reaction and an agreeable, ethereal odor; not miscible with water, but clearly miscible with alcohol, and with ether. Specific gravity: 1,453–1,457. Boiling point: 38–40°.

Shake 5 ccm of Ethyl Bromide frequently with an equal volume of sulphuric acid in a glass-stoppered cylinder of 3 cm in diameter; the acid should produce no color within 1 hour.

Allow 5 ccm of Ethyl Bromide to evaporate spontaneously in a dish; no alliaceous odor should be noticeable. When evaporated on a water bath, it should leave no residue.

Shake 5 ccm of Ethyl Bromide with an equal volume of water for a few seconds, and quickly separate 2,5 ccm of the aqueous part; the latter should remain clear at least for 5 minutes on the addition of 1 drop of silver nitrate solution.

Preserve it with care, in small, amber-colored, partially filled, well-stoppered bottles, in a cool dark place.

AETHYLIUM CHLORATUM.

Ethyl Chloride.

$C_2H_5Cl = 64,51$

A clear, colorless, highly volatile liquid, having characteristic odor and taste; slightly miscible with water, but miscible in all proportions with alcohol, and with ether; when ignited, it burns with a flame tinged with green. Specific gravity: 0,921 at 0°. Boiling point: 12–12,5°.

Shake 5 ccm of Ethyl Chloride with an equal volume of water, previously cooled to 0°; the aqueous part should not redden a blue litmus paper, and, when acidified with nitric acid, should not be rendered turbid with 1 drop of silver nitrate solution.

Allow 5 ccm of Ethyl Chloride to evaporate spontaneously in a dish; no solid residue should remain, and at the same time no alliaceous odor should be perceptible.

Preserve it with care, in hermatically sealed containers, protected from light, in a cool dark place.

AETHYLMORPHINUM HYDROCHLORICUM.

Ethylmorphine Hydrochloride.

$C_{19}H_{23}NO_3.HCl+2H_2O=385,79$

A white, crystalline powder, having no odor and a slightly bitter taste ; soluble in 12 parts of water, showing a neutral reaction, also soluble in 25 parts of alcohol, but almost insoluble in ether, or in chloroform.

0,01 g of the salt dissolves colorlessly in 10 ccm of sulphuric acid evolving hydrogen chloride. Add 1 drop of ferric chloride solution to the solution and warm it gently ; it acquires at first a green, then a deep blue color, changing to deep red on the addition of 2–3 drops of nitric acid.

An aqueous solution (1 : 20) of the salt produces a precipitate with silver nitrate solution, and with potassium hydroxide solution.

Add to 1 ccm of an aqueous solution (1 : 100) of the salt a solution, obtained by dissolving a small piece of potassium ferricyanide in 10 ccm of water and adding 1 drop of ferric chloride solution ; the mixture should immediately produce no blue color.

Dissolve 0,1 g of the salt in 2 ccm of water, and add 1–2 drops of ammonia water ; a white precipitate should be produced, which is insoluble in 10–15 drops of the same reagent, and, after washing and drying, melts at 89–90°.

When dried at 110°, it should lose not more than 9,5 per cent. of its weight.

On incineration, the salt should leave not more than 0,1 per cent. of solid residue.

Preserve it with care.

Maximum dose at a time: 0,03 g.
Maximum dose for a day: 0,1 g.

AGAR-AGAR.

Agar-Agar.

The bleached mucilaginous substance of the algae, Gelidium Amansii *Lam.* and other species of Gelidium, prepared by freezing and drying.

In 4-edged sticks of whitish color, translucent, with a slight lustre, externally crumpled, light, spongy, and tough.

When 1 g of Agar-Agar is boiled with 100 ccm of water, it dissolves leaving a small quantity of residue, and produces a slightly turbid mucilage, which, on cooling, becomes semi-transparent jelly. The mucilage should not turn a blue litmus paper red. 3 ccm of the mucilage, on the addition of 1 drop of iodine solution, should remain yellow, nor should decolorize it immediately; but the mixture should be colored deep violet by 0,5 ccm more of the reagent.

When dried at 100°, Agar-Agar should lose not more than 1,5 per cent. of its weight.

On incineration, Agar-Agar should leave not more than 4,5 per cent. of solid residue.

AGARICINUM.

Agaricine.

$C_{22}H_{40}O_7 + 1\frac{1}{2}H_2O = 443,45$

A white, crystalline powder, odorless and tasteless; slightly soluble in water; it swells up in warm water, and dissolves clearly in boiling water with foaming, showing an acid reaction, and becomes conspicuously turbid on cooling.

It is soluble in 180 parts of alcohol, and in 10 parts of boiling alcohol, somewhat easily soluble in warm glacial acetic acid, and in warm turpentine oil, sparingly soluble in ether, but almost insoluble in chloroform. It dissolves in potassium hydroxide solution, and in ammonia water, forming a clear solution which foams strongly on shaking.

Agaricine, previously dried at 100°, melts at about 140°, and, on further heating, it chars evolving white fumes and emits an odor resembling burning fats.

On heating 0,1 g of Agaricine with 10 ccm of diluted sulphuric acid, it should form a turbid solution, which, upon standing on a water bath, deposits oil globules solidifying to crystalline masses on cooling.

On incineration, it should leave not more than 0,1 per cent. of solid residue.

Preserve it with care.

Maximum dose at a time: 0,1 g.

ALBUMINUM TANNICUM.

Albumen Tannate.

A brownish powder, almost odorless and tasteless; slightly soluble in water, and in alcohol. When shaken with water and filtered, the filtrate acquires a deep blue color with 1 drop of ferric chloride solution. When boiled with water and filtered, the filtrate produces a precipitate on the addition of albumen solution.

Boil it with sodium hydroxide solution, and, after cooling, supersaturate with hydrochloric acid; it evolves the odor of hydrogen sulphide.

Mix 1 g of Albumen Tannate with 0,25 g of saccharated pepsin, previously dissolved in 100 ccm of water, and with 1 ccm of diluted hydrochloric acid, warm the mixture for 3 hours at 40°, and then filter; the residue, left on the filter paper, washed 3 times with 10 ccm each of water, and dried at 100°, should weigh at least 0,5 g.

Shake 2 g of Albumen Tannate with 20 ccm of petroleum benzin frequently and strongly for 15 minutes, then filter, and evaporate 10 ccm of the filtrate; the residue left should weigh not more than 0,05 g.

Incinerate 2 g of Albumen Tannate, dissolve the residue in 5 ccm of diluted hydrochloric acid by the aid of gentle heat, and then filter; the filtrate should neither be affected nor be colored any more than slightly by hydrogen sulphide water.

When dried at 100°, it should lose not more than 5 per cent. of its weight.

On incineration, it should leave not more than 1 per cent. of solid residue.

ALCOHOL ABSOLUTUS.

Absolute Alcohol.

$C_2H_6O = 46,06$.

A clear, colorless, volatile liquid, of neutral reaction; having an agreeable, characteristic, penetrating odor and a burning taste; clearly miscible in all proportions with water, ether, chloroform, and with benzene. Specific gravity: 0,796–0,797. Boiling point: 78–79°.

Absolute Alcohol contains 99,66–99,46 per cent. by volume, or 99,44–99,11 per cent by weight, of pure ethyl alcohol.

It should have no foreign odor, and should be clearly miscible with water.

Add 1 ccm of silver nitrate solution to 10 ccm of Absolute Alcohol, diluted with an equal volume of water, then add ammonia water until the precipitate first produced is dissolved, and allow the solution to stand in a dark place; it should neither be colored nor be rendered turbid within 12 hours.

Evaporate 10 ccm of Absolute Alcohol with 0,2 ccm of potassium hydroxide solution until it becomes 1 ccm, and then supersaturate it with diluted sulphuric acid; no odor of fusel oil should be evolved.

Pour 5 ccm of Absolute Alcohol carefully upon 5 ccm of sulphuric acid in a test tube, so as to form 2 layers; no rose-red zone should appear at the line of contact, even on standing for a long time.

A mixture of 10 ccm of Absolute Alcohol and 1 ccm of potassium permanganate solution should not turn yellow within 20 minutes.

Distil 100 ccm of Absolute Alcohol slowly, at the rate of 10 drops or less per 1 minute, transfer 0,1 ccm from 10 ccm of the first distillate into a test tube, then add 5 ccm of potassium permanganate solution (1 : 100) and 0,2 ccm of sulphuric acid, and allow the mixture to stand for 2–3 minutes. Add 1 ccm of oxalic acid solution (1 : 12), then, when the mixture has become yellow, shake with 1 ccm of sulphuric acid, and, when it has been completely decolorized, add 5 ccm of fuchsin sulphurous acid solution. Gently shake the stoppered test tube and set it aside; no color, or, if any, not more than a faint blue color should develop within 1 hour.

Shake the whole remainder of the first distillate with 250 ccm of potassium permanganate solution (1 : 100) and 10 ccm of sulphuric acid, allow the mixture to stand for 2–3 minutes, then decolorize it with oxalic acid solution (1 : 12), and distil. During the distillation occasionally take about 5 ccm of the distillate, and add about 0,03 g of phenylhydrazine hydrochloride, 4 drops of sodium nitroprusside solution (1 : 40) and 1 ccm of sodium hydroxide solution (1 : 10), and repeat the procedure until the mixture is no more colored dark red.

Then change the receiver, collect the distillate, mix with 3 g of calcium carbonate, and distil once more. Add an excess of ammonia water to the distillate, and evaporate the mixture at a temperature not exceeding 80°. Take 2 drops of the concentrated liquid on an object glass, add 1 drop of mercuric chloride solution, and inspect it under the microscope; no radiated crystals should be found.

It should not be colored by hydrogen sulphide water, or by ammonia water.

Evaporate 10 ccm of Absolute Alcohol on a water bath; no weighable residue should remain.

Preserve it in well-stoppered bottles.

ALOË.

Aloes.

The inspissated juice, collected from the leaves of various species of Aloë, growing in Africa.

Dark brown, brittle masses, the fragments of which are reddish to light brown, transparent, sharp-edged, of glassy lustre and conchoidal fracture, and show no crystalline structure when examined under the microscope; odor characteristic; taste bitter.

On boiling Aloes with chloroform, or on adding ether, the liquid acquires only a slightly yellow color, and the ethereal solution, when evaporated, leaves a sticky residue of a very slightly yellow color.

A solution of Aloes in boiling water acquires a greenish fluorescence on the addition of concentrated borax solution.

5 parts of Aloes should produce an almost clear solution on boiling with 60 parts of water, and about 3 parts should deposit on cooling. A solution, obtained by heating 1 part of Aloes with 5 parts of alcohol and then filtered, should not become turbid on cooling.

On pouring nitric acid upon its fragments, only a slightly greenish color and not a red color should be produced around them within 3 minutes.

On incineration, it should leave not more than 1,5 per cent. of solid residue.

In order to prepare its powder, throughly dried material should be used.

ALUMEN.

Potassium Alum.

$AlK(SO_4)_2 + 12H_2O = 474,51$

Colorless, transparent, hard, octahedral crystals, or a crystalline powder, frequently having a white coating on their surface; having a sweetish and astringent taste; soluble in 11 parts of water, showing an acid reaction, almost insoluble in alcohol.

When heated, the salt melts at first, then swells up, and finally turns into white, porous masses.

An aqueous solution of the salt produces, with sodium hydroxide solution, a white gelatinous precipitate, which is soluble in an excess of the reagent, and reappears on the addition of an excess of ammonium chloride solution.

A saturated, aqueous solution of the salt produces a crystalline precipitate within 30 minutes on shaking vigorously with tartaric acid solution, and also produces, with barium nitrate solution, a white precipitate, which is insoluble in diluted acids.

An aqueous solution (1 : 20) of the salt should not be affected by hydrogen sulphide water; 20 ccm of the same solution should not at once acquire a blue color with 0,5 ccm of potassium ferrocyanide solution.

On heating 1 g of the salt with 1 ccm of water and 3 ccm of sodium hydroxide solution, no ammonia should be evolved.

ALUMEN USTUM.

Exsiccated Alum.

A white powder, slowly but almost completely soluble in 30 parts of water.

An aqueous solution (1 : 40) of Exsiccated Alum should respond to the tests given under *Alumen.*

When gently ignited, it should lose not more than 10 per cent. of its weight.

Preserve it in well-stoppered bottles.

ALUMINIUM SULFURICUM.

Aluminium Sulphate.

$Al_2(SO_4)_3+18H_2O=666,67$

White, crystalline fragments; soluble in 1,2 parts of water, readily soluble in boiling water, showing an acid reaction, but almost insoluble in alcohol. It has an acid and astringent taste.

An aqueous solution of the salt produces, with barium nitrate solution, a white precipitate, insoluble in diluted acids; the same solution produces, with sodium hydroxide solution, a white, gelatinous precipitate, which is soluble in an excess of the reagent and reappears on the addition of an excess of ammonium chloride solution.

An aqueous solution (1 : 10) of the salt should be colorless and almost clear, and should neither be affected by hydrogen sulphide water nor produce any more than an opalescence on the addition of an equal volume of tenth-normal sodium thiosulphate volumetric solution.

20 ccm of an aqueous solution (1 : 20) of the salt should not be immediately colored blue on the addition of 0,5 ccm of potassium ferrocyanide solution.

A mixture of 1 g of its powder, dried at 100°, and 3 ccm of stannous chloride solution should not assume a dark color within 1 hour.

AMMONIACUM.

Ammoniacum.

A gum-resin obtained from Dorema Ammoniacum *Don.*

Brownish tears, separated or sticking together, or in masses of moderate size; the freshly fractured surface shows an opaque, whitish color; brittle when cold; softening but not melting to a clear liquid when heated; having a characteristic odor and a bitter, acrid and aromatic taste.

A turbid liquid, obtained by boiling 1 part of Ammoniacum with 10 parts of water, produces a dirty reddish-violet color with ferric chloride solution.

Triturate 1 part of Ammoniacum with 3 parts of water; a white emulsion is obtained, which acquires at first a yellow and then a brown color on the addition of sodium hydroxide solution.

Boil 5 g of finely ground Ammoniacum with about 13 ccm of fuming hydrochloric acid for 15 minutes, and filter; the clear filtrate, when carefully supersaturated with ammonia water, should display no blue fluorescence in reflected light.

When thoroughly extracted with boiling alcohol, it leaves a residue, which, after drying, should not exceed 40 per cent. On incineration, it should leave not more than 5 per cent. of solid residue.

In order to pulverize it, it should be dried in a exsiccator, and ground at as low a temperature as possible.

AMMONIUM BENZOÏCUM.

Ammonium Benzoate.

$C_7H_9NO_2 = 139,12$

White, thin laminar crystals, or a crystalline powder, odorless, or having a faint odor of benzoic acid; soluble in 6 parts of water, and in about 2 parts of boiling water, showing a neutral or a slightly acid reaction, also soluble in 30 parts of alcohol. Melting point: 190°.

When strongly heated, it volatilizes evolving vapors of ammonia and benzoic acid.

An aqueous solution of the salt evolves an ammoniacal odor on warming with sodium hydroxide solution, yields with ferric chloride solution a reddish-yellow precipitate, and with hydrochloric acid a white, crystalline precipitate, which redissolves on heating.

An aqueous solution (1 : 20) of the salt should not be affected by hydrogen sulphide water, ammonium sulphide, or by barium nitrate solution; after the addition of an equal volume of alcohol and a small quantity of nitric acid, the same solution should produce no more than an opalescence with silver nitrate solution.

Mix 0,1 g of the salt with 1 ccm of sodium carbonate solution, evaporate it to dryness, ignite gently, then dissolve the residue in 30 ccm of water, and filter; the filtrate, acidified with nitric acid, should produce no more than an opalescence with silver nitrate solution.

On incineration, it should leave not more than 0,1 per cent. of solid residue.

Preserve it in well-closed containers.

AMMONIUM BROMATUM.

Ammonium Bromide.

$NH_4Br = 97,96$

White crystals, or a crystalline powder; soluble in 1,5 parts of water, and in about 150 parts of alcohol, and completely votatilizing when heated.

Shake an aqueous solution of the salt with a small quantity of chlorine water and chloroform; the latter acquires a reddish-brown color. On heating with sodium hydroxide solution, the same solution evolves ammonia.

Pour 2–3 drops of diluted sulphuric acid upon a small quantity of the powdered salt in a white porcelain dish; it should not at once assume a yellow color.

An aqueous solution (1 : 20) of the salt should be colorless, clear and neutral or almost neutral, and should not be affected by hydrogen sulphide water, barium nitrate solution, or by diluted sulphuric acid. 20 ccm of the same solution should not at once acquire a blue color with 0,5 ccm of potassium ferrocyanide solution.

Mix 10 ccm of its aqueous solution (1 : 20) with 3 drops of ferric chloride solution and a small quantity of starch solution; the mixture should not acquire a blue color within 10 minutes.

Dissolve 3 g of the salt, previously dried at 100°, in 500 ccm of water; 50 ccm of the resulting solution, mixed with 1–2 drops of potassium chromate solution, should require 30,6–30,9 ccm of tenth-normal silver nitrate volumetric solution to produce a permanent red color.

AMMONIUM CARBONICUM.

Ammonium Carbonate.

Colorless, translucent, compact, hard, striated, crystalline masses, having a strong odor of ammonia, becoming, on exposure to the air, opaque and white by efflorescence; volatile when heated; slowly but completely soluble in about 5 parts of water, showing an alkaline reaction, and soluble with much effervescence in diluted acids.

An aqueous solution (1 : 20) of the salt, supersaturated with acetic acid, should not be affected by barium nitrate solution, ammonium oxalate solution, or by hydrogen sulphide water; the same aqueous solution, supersaturated with hydrochloric acid, should acquire no red color with ferric chloride solution.

The same solution, on the addition of an excess of silver nitrate solution and subsequent supersaturation with nitric acid, should neither be colored brown, nor become any more than opalescent within 2 minutes.

1 g of the salt, when supersaturated with nitric acid and then evaporated to dryness on a water bath, should leave a white residue, which volatilizes completely on heating.

Preserve it in well-stoppered bottles.

AMMONIUM CHLORATUM.

Ammonium Chloride. *Sal Ammoniac.*

$NH_4Cl = 53{,}5$

A white, crystalline powder, or hard, striated, crystalline masses, odorless, permanent in the air, volatile when heated; soluble in 3 parts of water, and in equal parts of boiling water, but difficultly soluble in alcohol.

An aqueous solution of the salt yields, on the addition of silver nitrate solution, a white curdy precipitate, which is completely soluble in ammonia water; the same solution, when heated with sodium hydroxide solution, evolves ammonia.

An aqueous solution (1 : 20) of the salt should be colorless, clear, and slightly acid, and should not be affected by hydrogen sulphide water, barium nitrate solution, ammonium oxalate solution, or by diluted sulphuric acid; the same aqueous solution, acidulated with hydrochloric acid, should assume no red color with ferric chloride solution.

20 ccm of an aqueous solution (1 : 20) of the salt should not at once acquire a blue color with 0,5 ccm of potassium ferrocyanide solution.

Add a little nitric acid to 1 g of the salt, and evaporate the mixture to dryness on a water bath; the residue should be white, and volatilize completely on heating.

AMMONIUM SULFOICHTHYOLICUM.

Ammonium Sulphoichthyolate.

A reddish-brown, syrupy liquid, having an empyreumatic odor, swelling and charring when heated, leaving no residue on ignition; clearly miscible with water, showing an acid reaction, considerably soluble in alcohol, slightly in ether and in petroleum benzin, and almost completely soluble in a mixture of equal volumes of alcohol and ether.

On heating with potassium hydroxide solution, it evolves ammonia, and, on further heating the mixture until it chars and on adding hydrochloric acid, hydrogen sulphide is evolved.

An aqueous solution (1 : 20) of the salt precipitates, with hydrochloric acid, a dark resinous substance, which is soluble in ether and in water, and is precipitated from the aqueous solution by adding hydrochloric acid or sodium chloride.

An aqueous solution (1 : 20) of the salt should not become turbid or change its color when heated.

On the addition of diluted sulphuric acid to an aqueous solution (1 : 20) of the salt, no odor of sulphurous acid should be perceptible within 30 minutes.

Add nitric acid to an aqueous solution (1 : 20) of the salt, and filter; the filtrate obtained should produce no more than a turbidity with silver nitrate solution, or with barium nitrate solution.

Mix 0,5 g of the salt, previously dried at 100°, with 2 g of potassium nitrate and 3 g of exsiccated sodium carbonate, and carefully ignite the mixture. Dissolve the white fused mass in warm water, and acidulate it with hydrochloric acid; the resulting solution should produce, on the addition of barium chloride solution, 0,51–0,62 g of barium sulphate.

When dried at 100°, it should lose not more than 50 per cent. of its weight.

On incineration, it should leave not more than 0,3 per cent. of solid residue.

AMYGDALAE AMARAE.

Bitter Almond.

The seed of Prunus Amygdalus *Stokes.*

Asymmetrically ovoid and compressed; in average 2 cm long and 1,2 cm broad; pointed at one end, and rounded at the other, being 0,8 cm thick at that part.

The seed-coat is brown, externally assuming a powdery appearance by thick-walled epidermal cells, which fall off easily; internally traversed by numerous vascular bundles, radiating from chalaza.

When softened in boiling water, the seed-coat may be taken off together with thin residual piece of the endosperm; the cotyledons are purely white.

Bitter Almond should have a very bitter but not rancid taste, and, when triturated with water, it should evolve an odor of benzaldehyde.

AMYGDALAE DULCES.

Sweet Almond.

The seed of Prunus Amygdalus *Stokes.*

In average 2,25 cm long and 1,5 cm broad; asymmetrically ovoid and compressed; pointed at one end, and rounded at the other, sometimes thicker than 1 cm at that part.

The seed-coat is brown, externally assuming a powdery appearance by thick-walled epidermal cells, which fall off easily; internally traversed by numerous vascular bundles, radiating from chalaza.

When softened in boiling water, the seed-coat may be taken off together with thin residual piece of the endosperm; the cotyledons are purely white.

It should have a bland, oily, slimy, sweetish but not rancid taste. When triturated with water, it should evolve no odor of benzaldehyde.

AMYLIUM NITROSUM.

Amyl Nitrite.

$C_5H_{11}NO_2=117{,}12$

A clear, yellowish, volatile liquid, having a characteristic odor and an aromatic, burning taste; almost insoluble in water, but miscible in all proportions with alcohol, and with ether; burning on inflammation with a yellow, luminous and sooty flame. Specific gravity: 0,87–0,88. Boiling point: 97–99°.

When boiled with an excess of potassium hydroxide solution, it evolves the odor of amyl alcohol. Add potassium iodide to the cold mixture, and acidulate it with acetic acid; iodine is set free.

Shake 5 ccm of Amyl Nitrite with a mixture of 0,1 ccm of ammonia water and 1 ccm of water; the aqueous layer should not be acid to a litmus paper. Warm 1 ccm of Amyl Nitrite with a mixture of 1,5 ccm each of silver nitrate solution and absolute alcohol and 2–3 drops of ammonia water; neither a brown nor a black color should be produced.

When cooled to 0°, it should not be rendered turbid.

Preserve it with care, in hermetically sealed containers, in a cool place, protected from light.

AMYLUM.

Starch.

(a) *Katakuri-Starch.*

The starch prepared from the root of Erythronium japonicum *Makino.*

A purely white, tasteless powder, almost without odor. When examined under the microscope, it appears as granules, not uniform in size, but mostly oval, 0,007–0,092 mm in diameter, with indistinct striae, and usually having a hilum near the narrow end.

(b) *Kudzu-Starch.*

The starch prepared from the root of Pueraria hirsuta *Matsum.*

A purely white, tasteless powder, almost without odor. When examined under the microscope, it appears as granules, not uniform in size, but more or less angular in outline, 0,002–0,018 mm in diameter.

(c) *Potato-Starch.*

The starch prepared from the tuber of Solanum tuberosum *L.*

A white, tasteless, almost odorless powder, with a slight lustre. When examined under the microscope, it appears as granules, either conchoidal or spheroidal, 0,07–0,09 mm or occasionally exceeding 0,1 mm in diameter, distinctly showing excentric striae, with a hilum usually near the narrow end. Sometimes compound granules are found.

Starch is insoluble in cold water, or in alcohol.

Triturate it with 100 parts of water, boil, and then cool; it forms a neutral paste, which acquires a dark blue color with iodine solution.

On incineration, it should leave not more than 1 per cent. of solid residue.

O ANTIDOTUM ARSENICI.

Arsenic Antidote.

Solution of Ferric Sulphate	100 *pts.*
Distilled Water	500 *pts.*
Magnesium Oxide	15 *pts.*

Mix solution of ferric sulphate with 250 parts of distilled water, add to the liquid magnesium oxide, previously thoroughly triturated with 250 parts of distilled water, and carefully shake the mixture until a homogeneous, pappy mixture results.

Arsenic Antidote should be freshly prepared when wanted for use, but 100 g of solution of ferric sulphate and 15 g of magnesium oxide should be weighed, and kept for use separately.

ANTIPYRINO-CAFFEÏNUM CITRICUM.

Antipyrine-Caffeine Citrate.

Antipyrine	90 *pts.*
Caffeine	9 *pts.*
Citric Acid	1 *pt.*
Distilled Water	8 *pts.*

Dissolve the mixture on a water bath, evaporate to dryness, and, after cooling, reduce the residue to a powder.

A white powder, having a bitter taste; soluble in 2 parts of water, showing an acid reaction, readily soluble in alcohol, and in chloroform, but difficultly soluble in ether. Melting point: 104–108°.

Dissolve 0,1 g of Antipyrine-Caffeine Citrate in 10 ccm of water, and add 3–4 drops of fuming nitric acid; the solution gradually produces a pretty green color.

Add 2–3 drops of nitric acid to 0,2 g of Antipyrine-Caffeine Citrate, and evaporate the mixture on a water bath; the residue produces a violet-red color on the addition of a little ammonia water.

On incineration, it should leave not more than 0,1 per cent. of solid residue.

Preserve it with care.

Maximum dose at a time: 1 g.
Maximum dose for a day: 3 g.

O ANTIPYRINUM.

Antipyrine.

$C_{11}H_{12}N_2O = 188{,}17$

Colorless, prismatic crystals, or a white, crystalline powder, almost odorless, but with a slightly bitter taste; soluble in almost equal parts of water, alcohol, and of chloroform, also soluble in about 80 parts of ether. Melting point: 110–113°.

An aqueous solution (1 : 100) of Antipyrine yields a white precipitate with tannic acid solution.

2 ccm of the same solution is colored green by 2 drops of fuming nitric acid. Heat the mixture to boiling, and add a few drops of fuming nitric acid: it changes to red.

2 ccm of an aqueous solution (1 : 1000) of Antipyrine is colored blood-red by 1 drop of ferric chloride solution, the color being changed to light yellow by 10 drops of sulphuric acid.

An aqueous solution (1 : 2) of Antipyrine should be colorless and neutral, and should not be affected by hydrogen sulphide water.

It should dissolve colorlessly in sulphuric acid.

On incineration, it should leave not more than 0,1 per cent. of solid residue.

Preserve it with care.

Maximum dose at a time: 1 g.
Maximum dose for a day: 3 g.

ANTIPYRINUM SALICYLICUM.

Antipyrine Salicylate.

$C_{11}H_{12}N_2O.C_7H_6O_3 = 326,25$

A white, odorless, crystalline powder, or hexagonal plates, having a slightly sweet taste; soluble in 250 parts of water, and in 40 parts of boiling water, readily soluble in alcohol, and in chloroform, but somewhat difficultly soluble in ether. Melting point: 91–92°.

An aqueous solution (1 : 250) of Antipyrine Salicylate produces a white turbidity with tannic acid solution, and a green color with a few drops of fuming nitric acid. 10 ccm of the same aqueous solution produces, with 1 drop of ferric chloride solution, a deep red color, which changes to violet-red by diluting with much water.

Heat 0,5 g of Antipyrine Salicylate with 15 ccm of water and ccm of hydrochloric acid; a colorless, clear solution results, which, on cooling, deposits white, fine needles. The crystals, after washing with water and drying, melt at about 157°, and dissolve in 20 ccm of boiling water, the solution being colored deep violet by 5 drops of ferric chloride solution.

An aqueous solution (1 : 250) of the salt should not be affected by silver nitrate solution, barium nitrate solution, or by hydrogen sulphide water.

On incineration, it should leave not more than 0,1 per cent. of solid residue.

Preserve it with care.

Maximum dose at a time: 1 g.
Maximum dose for a day: 3 g.

O APOMORPHINUM HYDROCHLORICUM.

Apomorphine Hydrochloride.

$C_{17}H_{17}NO_2.HCl + \frac{1}{2}H_2O = 312,71$

White or grayish-white crystals, gradually acquiring a greenish tint in moist air, especially on exposure to light; soluble in about 50 parts of water, and in 40 parts of alcohol, showing a neutral reaction, but almost insoluble in ether, or in chloroform.

Apomorphine Hydrochloride dissolves in nitric acid with a blood-red color; when dissolved in an excess of sodium hydroxide solution, the salt forms a solution, which immediately acquires, in the air, a reddish-violet color, finally changing to black.

An aqueous solution of the salt produces, on the addition of sodium bicarbonate solution, a white, amorphous precipitate, which rapidly changes to green on exposure to the air, and dissolves in ether with a violet-red color or in chloroform with a bluish-violet color.

An aqueous solution of the salt, mixed with ammonia water, at once produces a black color with silver nitrate solution.

A saturated, aqueous solution of the salt should be colorless or nearly so.

Shake the dried salt with ether; the latter should acquire no color, or, if any, no more than a light reddish color.

On incineration, it should leave not more than 0,1 per cent. of solid residue.

Preserve it with special care, in well-stoppered bottles, protected from light.

Maximum dose at a time: 0,02 g.

O AQUA AMMONIAE.

Ammonia Water.

A colorless, clear, volatile liquid, having a characteristic pungent odor, and showing a strongly alkaline reaction. White fumes are produced on bringing a glass rod, dipped into diluted hydrochloric acid, near the surface of Ammonia Water. Specific gravity: about 0,96.

Ammonia Water contains 9,94–10 per cent. of pure ammonia ($NH_3 = 17,03$).

Mix 1 volume of Ammonia Water with 4 volumes of lime water, and allow the mixture to stand in a well-closed vessel for 1 hour; no more than a slight turbidity should be produced. 1 volume of Ammonia Water, diluted with 2 volumes of water, should not be affected by hydrogen sulphide water, or by ammonium oxalate solution.

Ammonia Water, slightly acidified with nitric acid, should be colorless and odorless, should not be affected by barium nitrate solution, nor produce any more than a slight opalescence with silver nitrate solution.

Supersaturate 3 ccm of Ammonia Water with nitric acid, and evaporate the solution on a water bath; the residue should be white and completely volatilize when heated.

Add 30 ccm of normal hydrochloric acid volumetric solution to 5 ccm of Ammonia Water; 1,8–2 ccm of normal potassium hydroxide volumetric solution should be required to neutralize the excess of the acid (Indicator: Methyl orange solution).

Preserve it in glass-stoppered bottles, in a cool place.

AQUA CALCARIAE.

Lime Water.

Quicklime	1 *pt.*
Common Water	104 *pts.*

Slake quicklime by adding 4 parts of water, transfer it into a bottle, add 50 parts of water, shake the well-stoppered bottle, and allow it to subside. Decant the supernatant liquid, mix the residue with 50 parts of water, shake the well-stoppered bottle repeatedly and vigorously, and allow it to subside. Decant the clear, supernatant liquid or filter it when required for use.

A clear, colorless liquid, having a strongly alkaline reaction, and becoming turbid on exposure to the air or when boiled.

The alkaline reaction of Lime Water should entirely disappear after it has been saturated with carbon dioxide and subsequently boiled.

100 ccm of Lime Water should require for neutralization 4–4,5 ccm of normal hydrochloric acid volumetric solution (Indicator: Phenolphthalein solution).

O AQUA CARBOLISATA.

Carbolic Acid Water.

Liquefied Carbolic Acid	11 *pts.*
Distilled Water	489 *pts.*

Mix them.

A clear, colorless liquid, containing 2 per cent. of pure carbolic acid ($C_6H_6O=94,08$).

AQUA CARBOLISATA PRO DESINFECTIONE.

Carbolic Acid Water for Disinfection.

Carbolic Acid for Disinfection	3 *pts.*
Common Salt	5 *pts.*
Common Water	92 *pts.*

Dissolve carbolic acid and the salt in water.

AQUA CHLOROFORMII.

Chloroform Water.

Chloroform	1 *vol.*
Distilled Water	400 *vols.*

Mix and shake them up.

A colorless, clear liquid.

Prepare it freshly when required for use.

AQUA CINNAMOMI.

Cinnamon Water.

Oil of Cinnamon	2 *pts.*
Lukewarm Distilled Water	1000 *pts.*

Mix them, shake the mixture strongly, and, after cooling, filter it with a moistened filter paper.

A clear or slightly turbid liquid.

AQUA COMMUNIS.

Common Water.

A colorless, limpid liquid, odorless and with a refreshing taste.

Regarding its chemical and bacteriological qualities, it should conform to the hygienic requirements.

The standards of judgement and methods of testing are stated in another regulation.

O AQUA CRESOLICA.

Cresol Water.

Compound Solution of Cresol	3 *pts.*
Water	47 *pts.*

Mix them.

Cresol Water for medical purposes should be prepared with distilled water, but, for disinfecting purposes, common water may be used.

Cresol Water contains about 3 per cent. of crude cresol.

A clear, light yellow liquid, when prepared with distilled water.

When prepared with common water, it is slightly turbid, but should separate no oily drops.

O AQUA DESTILLATA.

Distilled Water.

$H_2O=18,02$

A colorless, limpid liquid, without odor or taste, showing a neutral reaction.

Separate portions of 20 ccm each of Distilled Water should not be affected by Nessler's reagent, silver nitrate solution, barium nitrate solution, ammonium oxalate solution, or by hydrogen sulphide water.

The same portion, after the addition of ammonia water, should not be affected by hydrogen sulphide water.

Mix 25 ccm of Distilled Water with 50 ccm of lime water in a flask, and set it aside well-stoppered; the mixture should remain clear within 1 hour.

Mix 100 ccm of Distilled Water with 1 ccm of diluted sulphuric acid and 0,3 ccm of potassium permanganate solution; the color of the liquid should not be destroyed by boiling it for 3 minutes.

On evaporation, 100 ccm of Distilled Water should leave no weighable solid residue.

AQUA FLORUM AURANTII.

Orange Flower Water.

Oil of Orange Flowers	1 *pt.*
Lukewarm Distilled Water	1000 *pts.*

Mix them, shake the mixture strongly, and, after cooling, filter it with a moistened filter paper.

A colorless, clear liquid.

AQUA FOENICULI.

Fennel Water.

Oil of Fennel	2 *pts.*
Lukewarm Distilled Water	1000 *pts.*

Mix them, shake the mixture strongly, and, after cooling, filter it with a moistened filter paper.

A clear or almost clear liquid.

AQUA FORMALINATA.

Formaline Water.

Formaline	1 *pt.*
Common Water	34 *pts.*

Mix them.

AQUA MENTHAE.

Peppermint Water.

Oil of Peppermint	2 *pts.*
Lukewarm Distilled Water	1000 *pts.*

Mix them, shake the mixture strongly, and, after cooling, filter it with a moistened filter paper.

A clear or almost clear liquid.

AQUA PRUNI ARMENIACAE.

Apricot Water.

Apricot Seed	12 *pts.*
Common Water	20 *pts.*
Alcohol.	
Distilled Water.	

Crush the seed, remove the fixed oil as possible by expression in the cold, and reduce it to a medium powder. Add to the powder 20 parts of common water, transfer it into a large still, set it aside for 12 hours, and distil by steam, collecting 9 parts of the distillate in a receiver which contains 3 parts of alcohol. Estimate the content of hydrogen cyanide in the mixture according to the method described below, and dilute it with a mixture of 1 part of alcohol and 3 parts of distilled water, that it contains 0,1 per cent. of hydrogen cyanide.

A clear or slightly turbid liquid, scarcely reddening a blue litmus paper, having the remarkable odor of benzaldehyde even after the precipitation of hydrogen cyanide by shaking with silver nitrate solution. Specific gravity: 0,97–0,98.

Mix 10 ccm of Apricot Water with 0,8 ccm of tenth-normal silver nitrate volumetric solution and 2–3 drops of nitric acid, and filter the resulting precipitate; the filtrate should not be rendered turbid by the further addition of the volumetric solution.

Mix 2 volumes of Apricot Water with 1 volume of ammonia water; the solution should become slightly turdid within 10 minutes, and decidedly so within 20 minutes.

Evaporate 50 ccm of Apricot Water, and dissolve the residue in a mixture of 10 ccm of water and 3 drops of diluted nitric acid; the resulting solution should not be affected by barium nitrate solution.

Mix 100 ccm of Apricot Water with 10 ccm of ammonia water, allow the mixture to stand for 30 minutes, shake it successively for 3 times with 50 ccm each of ether, and distil the united ethereal solution. Mix the residue with 3 ccm of half-normal potassium hydroxide volumetric solution, evaporate the mixture in a platinum dish, carbonize the residue carefully, then extract it with boiling water for several times, and filter; put the filter paper in the same platinum dish, ignite it after drying, and incinerate completely. Transfer the filtrate into the same dish, evaporate it to dryness, dissolve the residue by pouring 1 ccm of diluted nitric acid and 2 ccm of water, and then filter; the clear filtrate obtained should produce no change, or, if any, no more than an opalescence with silver nitrate solution.

Evaporate 50 ccm of Apricot Water, dissolve the residue in a small quantity of diluted hydrochloric acid, and dilute it with water to 20 ccm; one half of the resulting solution, and the other half, rendered alkaline with ammonia water, should produce, if any, no more than a slight coloration with hydrogen sulphide water.

Dilute 25 ccm of Apricot Water with 100 ccm of water, and then add 1 ccm of potassium hydroxide solution; the mixture should require 4,4–4,7 ccm of tenth-normal silver nitrate volumetric solution in order to produce a permanent, whitish turbidity, on adding it, drop by drop, under constant stirring.

On evaporation, 5 ccm of Apricot Water should leave no weighable solid residue.

It may be used as a substitute for *Aqua Pruni macrophyllae.*

Preserve it with care, protected from light.

Maximum dose at a time: 2 g.
Maximum dose for a day: 6 g.

○ AQUA PRUNI MACROPHYLLAE.

Bakuchi Water.

Fresh Bakuchi Leaves	15 *pts.*
Common Water	45 *pts.*

Transfer the leaves in a large still, add water, and distil 12 parts. Estimate the content of hydrogen cyanide in the distillate according to the method described below, and dilute it with water, that it contains 0,1 per cent. of hydrogen cyanide.

A clear or almost clear liquid, scarcely reddening a blue litmus paper, having the remarkable odor of benzaldehyde even after the precipitation of hydrogen cyanide by shaking with silver nitrate solution.

Mix 10 ccm of Bakuchi Water with 0,8 ccm of tenth-normal silver nitrate volumetric solution and 2–3 drops of nitric acid, and filter the resulting precipitate; the filtrate should not be rendered turbid by the further addition of the volumetric solution.

Mix 2 volumes of Bakuchi Water with 1 volume of ammonia water; the solution should become slightly turbid within 10 minutes, and decidedly so within 20 minutes.

Evaporate 50 ccm of Bakuchi Water, and dissolve the residue in a mixture of 10 ccm of water and 3 drops of diluted nitric acid; the resulting solution should not be affected by barium nitrate solution.

Mix 100 ccm of Bakuchi Water with 10 ccm of ammonia water, allow the mixture to stand for 30 minutes, shake it successively for 3 times with 50 ccm each of ether, and distil the united ethereal solution. Mix the residue with 3 ccm of half-normal potassium hydroxide volumetric solution, evaporate the mixture in a platinum dish, carbonize the residue carefully, then extract it with boiling water for several times, and filter; put the filter paper in the same dish, ignite it after drying, and incinerate it completely. Transfer the filtrate into the same dish, evaporate it to dryness, and dissolve the residue by pouring 1 ccm of diluted nitric acid and 2 ccm of water, and then filter; the clear filtrate obtained should produce no change, or, if any, no more than an opalescence with silver nitrate solution.

Evaporate 50 ccm of Bakuchi Water, dissolve the residue in a small quantity of diluted hydrochloric acid, and dilute it with water to 20 ccm; one half of the resulting solution, and the other half, rendered alkaline with ammonia water, should produce, if any, no more than a slight coloration with hydrogen sulphide water.

Dilute 25 ccm of Bakuchi Water with 100 ccm of water, and then add 1 ccm of potassium hydroxide solution; the mixture should require 4,5–4,8 ccm of tenth-normal silver nitrate volumetric solution in order to produce a permanent, whitish turbidity, on adding it, drop by drop, under constant stirring.

On evaporation, 5 ccm of Bakuchi Water should leave no weighable solid residue.

It may be used as a substitute for *Aqua Pruni armeniacae.*

Preserve it with care, protected from light.

Maximum dose at a time: 2 g.

Maximum dose for a day: 6 g.

AQUA ROSAE.

Rose Water

Rose Oil	4 *dps.*
Lukewarm Distilled Water	1000 *ccm.*

Mix them, shake the mixture for a while, and, after cooling, filter it with a moistened filter paper.

An almost clear liquid, having an agreeable odor.

ARGENTUM COLLOIDALE.

Colloidal Silver.

A greenish-black or bluish-black leaflets, with metallic lustre; soluble in water.

Colloidal Silver contains 74–80 per cent. of pure silver (Ag=107,88).

An aqueous solution (1 : 50) of Colloidal Silver is dark brown, opaque, and, when diluted with much water, clear in transmitted light, but slightly turbid in reflected light.

An aqueous solution (1 : 50) of Colloidal Silver yields, with diluted sulphuric acid, a precipitate, which redissolves on the neutralization with sodium hydroxide solution.

On ignition, it burns emitting an odor resembling burning hair; the residue dissolves in nitric acid, leaving a little solid residue. The filtrate produces, with hydrochloric acid, a white, flocculent precipitate, which is soluble in ammonia water.

10 ccm of an aqueous solution (1 : 50) of Colloidal Silver should produce no turbidity with 1 ccm of sodium chloride solution, but should produce a precipitate on supersaturation with powdered sodium chloride, which redissolves on the dilution with water.

Dissolve 0,125 g of Colloidal Silver in 25 ccm of water, and allow the solution to stand for a few hours; dissolve 0,2 g of powdered potassium permanganate in 20 ccm of the clear supernatant liquid with agitation, gradually add 10 ccm of sulphuric acid, and boil the mixture until it becomes clear. Add water to the cold solution to make it measure 100 ccm, and discharge the color of the excessive potassium permanganate with ferrous sulphate solution; the mixture should require 6,9–7,4 ccm of tenth-normal ammonium sulphocyanate volumetric solution to produce a reddish color.

Preserve it protected from light.

ARGENTUM NITRICUM.

Silver Nitrate.

$AgNO_3 = 169,89$

Colorless, lustrous, tabular crystals; soluble in 0,6 parts of water, and in about 14 parts of alcohol.

An aqueous solution of the salt produces, with hydrochloric acid, a white, curdy precipitate, completely soluble in ammonia water, but insoluble in nitric acid.

An aqueous solution (1 : 5) of the salt should have a neutral reaction.

1 part of the salt should dissolve colorlessly and clearly in 3 parts of ammonia water.

Boil 5 ccm of an aqueous solution (1 : 20) of the salt with an excess of hydrochloric acid, and filter; the filtrate should leave no weighable solid residue on evaporation.

Preserve it with care, protected from light.

Maximum dose at a time: 0,03 g.
Maximum dose for a day: 0,1 g.

ARGENTUM NITRICUM CUM KALIO NITRICO.

Mitigated Caustic.

Silver Nitrate	1 *pt.*
Potassium Nitrate	2 *pts.*

Mix them, fuse the mixture with care, and mould it into small sticks.

White or grayish-white, hard, small sticks, having granular and crystalline fractures.

Dissolve 1 g of Mitigated Caustic in 10 ccm of water, and add 20 ccm of tenth-normal sodium chloride volumetric solution and 1–2 drops of potassium chromate solution; the solution should require 0,5–1 ccm of tenth-normal silver nitrate volumetric solution to produce a red color.

Preserve it with care, protected from light.

O ARGENTUM NITRICUM FUSUM.

Fused Silver Nitrate.

White or grayish-white sticks, having radiated, crystalline fractures, and melting when heated.

1 part of Fused Silver Nitrate should dissolve in 20 parts of water clearly, or showing, if any, no more than an opalescence.

In other respects it should conform to the tests under *Argentum nitricum.*

Preserve it with care, protected from light.

ARGENTUM PROTEÏNICUM.

Proteine Silver.

A minute, light yellow or brownish powder, having a slightly mineral taste; easily soluble in water, showing a neutral or a slightly alkaline reaction.

Proteine Silver contains not less than 8 per cent. of pure silver (Ag = 107,88).

When heated, it carbonizes evolving an odor resembling burning hair, and, on strong heating, it leaves a grayish-white residue, which, when dissolved in nitric acid, produces on the addition of hydrochloric acid a white, flocculent precipitate, soluble in ammonia water.

Mix 5 ccm of its aqueous solution (1 : 50) with 5 ccm of sodium hydroxide solution and 10 ccm of water, and add 2 ccm of copper sulphate solution (1 : 50); the mixture acquires a violet color after a few minutes.

An aqueous solution (1 : 50) of Proteine Silver should not immediately become turbid on the addition of sodium chloride solution; the same solution, to which ammonia water has been added, should produce no more than a faint dark color with hydrogen sulphide water.

Shake 1 g of Proteine Silver with 10 ccm of alcohol, and filter; the filtrate obtained should produce no change with hydrochloric acid.

Gradually incinerate 1 g of Proteine Silver, previously dried at 80°, in a porcelain crucible, and heat the residue with about 5 ccm of nitric acid until the evolution of colored gas ceases. Add water to the solution to make it measure about 100 ccm, and then add 2 ccm of ammonium ferric sulphate solution; it should require at least 7,4 ccm of tenth-normal ammonium sulphocyanate volumetric solution to produce a reddish color.

Preserve it in well-stoppered bottles, protected from light.

ASA FOETIDA.

Asafetida.

The gum-resin obtained from various species of Ferula, growing in Asia, especially from Ferula Assa foetida *L.*, Ferula Narthex *Boiss.* and Ferula foetida *Rgl.*

In tears, separated or sticking together, or in somewhat large masses, externally yellowish, purplish or brownish; the surface of the fresh fracture shows a white color, changing to a pink and finally to a brown color; odor alliaceous; taste bitter and acrid.

Triturate 1 part of Asafetida with 3 parts of water; a whitish emulsion is obtained, which acquires a yellow color with a small quantity of ammonia water.

Extract it thoroughly with boiling alcohol; the insoluble portion, when dried at 100°, should not exceed 50 per cent.

On incineration, it should leave not more than 15 per cent. of solid residue.

In order to pulverize it, first dry it in an exsiccator, and then pulverize it at a low temperature.

Preserve it in well-stoppered bottles.

○ ATROPINUM SULFURICUM.

Atropine Sulphate.

$$(C_{17}H_{23}NO_3)_2.H_2SO_4+H_2O=694,65$$

A white, crystalline powder; soluble in equal parts of water, and in 3 parts of alcohol, forming a colorless, neutral solution, but almost insoluble in ether, or in chloroform.

Heat 0,01 g of Atropine Sulphate in a small glass tube, until a white fume is produced, add 1,5 ccm of sulphuric acid to the residue, heat again until it acquires a brown color, and immediately add 2 ccm of water; a characteristic, agreeable odor is evolved, and then an odor of benzaldehyde is produced by the further addition of a small crystal of potassium permanganate.

Evaporate 0,01 g of the salt in a porcelain dish on a water bath with 5 drops of fuming nitric acid; a slightly yellowish residue is produced, which, when cold, acquires a violet color on dropping alcoholic potassium hydroxide solution upon it.

An aqueous solution of the salt produces, with barium nitrate solution, a white precipitate, insoluble in diluted acids.

An aqueous solution (1 : 1000) of the salt has a bitter, acrid taste, and, when applied to the eye, dilates the pupil.

An aqueous solution (1 : 60) of the salt should be rendered turbid by the addition of sodium hydroxide solution, but no turbidity should be immediately produced upon the addition of 4 ccm of ammonia water to 10 ccm of the same solution.

0,1 g of the salt should hardly be colored by 2 ccm of sulphuric acid, and by the further addition of a little nitric acid.

Add ammonia water to an aqueous solution (1 : 25) of the salt, collect the crystals after 2–3 minutes, wash them with water, and dry them over sulphuric acid; the crystals should melt above 115°.

When dried at 100°, the salt should lose not more than 2,6 per cent. of its weight.

On incineration, the salt should leave not more than 0,1 per cent. of solid residue.

Preserve it with special care.

Maximum dose at a time: 0,001 g.
Maximum dose for a day: 0,003 g.

BALSAMUM COPAÏVAE.

Balsam of Copaiba.

A balsam excreted from wounds made by incision on the trunk of various plants belonging to the genus Copaïfera, especially Copaïfera officinalis *L.*, Copaïfera guyanensis *Desfon.* and Copaïfera coriacea *Mart.*

A clear, more or less viscid liquid, of a yellowish-brown color, without fluorescence or with only slight fluorescence, having a characteristic odor, and acrid, slightly bitter taste; miscible, completely or almost clearly, with chloroform, and with absolute alcohol, and clearly with an equal volume of petroleum benzin. Specific gravity: 0,980–0,993. Acid value: 75,8–84,2. Saponification value: 84,2–92,6.

Dissolve 5 g of the balsam in 15 ccm of alcohol, and boil for 1 minute under reflux condenser; the solution, after cooling, should separate no oily substance within 1 hour, which, if any, should be soluble in glacial acetic acid.

Boil 20 drops of the balsam with 1 ccm of alcoholic potassium hydroxide solution for 2 minutes, and, after cooling, mix 2 ccm of ether; the solution should not turn gelatinous.

Add 1 volume of ammonia water to 3 volumes of the balsam, and stir; it should produce no gelatinous substance.

Dissolve 3 drops of the balsam in 3 ccm of glacial acetic acid, and then add 2–3 drops of sodium nitrite solution; this solution, on being carefully poured upon a layer of 2 ccm of sulphuric acid, should acquire no violet color within 30 minutes.

Dissolve 1 g of the balsam in 50 ccm of alcohol, and add 1 ccm of phenolphthalein solution; on titration, 2,7–3 ccm of half-normal alcoholic potassium hydroxide volumetric solution should be required to produce a red color.

Dissolve 1 g of the balsam in 50 ccm of alcohol, then add 20 ccm of half-normal alcoholic potassium hydroxide volumetric solution, heat the solution for 30 minutes on a water bath under reflux condenser, and add 1 ccm of phenolphthalein solution; on titration, 16,7–17 ccm of half-normal hydrochloric acid volumetric solution should be required in order to neutralize the excess of potassium hydroxide.

O BALSAMUM PERUVIANUM.

Balsam of Peru.

A balsam obtained by scorching the bark of Myroxylon Pereirae *Klotzsch.*

A dark brown liquid, not stringy, transparent in thin layers; having an agreeable, vanilla-like odor and an acrid, somewhat bitter taste; not drying in the air; clearly miscible with an equal volume of alcohol. Specific gravity : 1,140–1,158. Saponification value : not less than 224,4. Saponification value for cinnamein: not less than 236,5.

1 g of the balsam should be clearly soluble in the solution, obtained by dissolving 3 g of chloral hydrate in 2 ccm of water.

Warm 1 g of the balsam with 10 ccm of petroleum benzin for 10 minutes on a water bath under reflux condenser, take, after cooling, 5 ccm of the clear solution by decantation, and evaporate; on adding 1 drop of crude nitric acid to the residue, it should acquire a yellow color, but not green or bluish-green color which endures. On shaking 3 ccm of the clear solution, above mentioned, with an equal volume of copper acetate solution, it should acquire no green or bluish-green color.

Dissolve 1 g of the balsam in 20 ccm of alcohol, then add 50 ccm of half-normal alcoholic potassium hydroxide volumetric solution, and boil the solution for 30 minutes on a water bath under reflux condenser. Dilute it with 600 ccm of water, and add 1 ccm of phenolphthalein solution; on titration, not more than 42 ccm of half-normal hydrochloric acid volumetric solution should be required in order to neutralize the excess of potassium hydroxide.

Shake the mixture of 2,5 g of the balsam and 5 ccm each of water and sodium hydroxide solution with 50 ccm of ether, and evaporate 25 ccm of the clear ethereal solution; the residue, dried at 100° for 30 minutes, should weigh at least 0,7 g. Dissolve the residue in 25 ccm of alcohol, add 25 ccm of half-normal alcoholic potassium hydroxide volumetric solution, heat the mixture for 30 minutes on a water bath under reflux condenser, and add 1 ccm of phenolphthalein solution; on titration, not more than 19,1 ccm of half-normal hydrochloric acid volumetric solution should be required in order to neutralize the excess of potassium hydroxide.

BALSAMUM TOLUTANUM.

Balsam of Tolu.

A resin obtained from Myroxylon toluiferum *Humb., Bonpl. et Kunth.*

Brownish-red, crystalline masses; reducible, when dry, to a yellowish powder; having an agreeable odor and an aromatic, acid, slightly acrid taste. Acid value: 109,4–168,3. Saponification value: 154,3–218,8.

When dissolved in alcohol, chloroform, or in potassium hydroxide solution, Balsam of Tolu should leave not more than a small quantity of fibrous residue.

Warm 1 g of the balsam with 10 ccm of petroleum benzin for 10 minutes on a water bath under reflux condenser, take, after cooling, 5 ccm of the clear solution by decantation, and evaporate; on adding 1 drop of crude nitric acid to the residue, it should develop a yellow color, but not green or bluish-green color which endures. On shaking 3 ccm of the clear solution, above mentioned, with an equal volume of copper acetate solution, it should acquire no green or bluish-green color.

Dissolve 1 g of the balsam in 50 ccm of alcohol, and add 1 ccm of phenolphthalein solution; on titration, 3,9–6 ccm of half-normal alcoholic potassium hydroxide volumetric solution should be required to produce a red color.

Dissolve 1 g of the balsam in 50 ccm of alcohol, add 20 ccm of half-normal alcoholic potassium hydroxide volumetric solution, heat the solution on a water bath for 30 minutes, and add 1 ccm of phenolphthalein solution; on titration, 12,2–14,5 ccm of half-normal hydrochloric acid volumetric solution should be required in order to neutralize the excess of potassium hydroxide.

BENZALDEHYDUM.

Benzaldehyde.

$C_7H_6O = 106,05$

A colorless or faintly yellowish, highly refractive liquid, having a characteristic odor; soluble in 300 parts of water, soluble in all proportions in alcohol, and in ether. Specific gravity: 1,046–1,055. Boiling point: 177–179°.

Soak a piece of folded filter paper in 1 g of Benzaldehyde, ignite it in a porcelain dish, and cover the dish with a large beaker, the inner surface of which has been moistened with water; after burning, wash the inner surface of the beaker with a little water, and filter. The filtrate, acidified with nitric acid, should produce no more than an opalescence with silver nitrate solution.

Shake 0,2 g of Benzaldehyde with 10 ccm of water and 2–3 drops of sodium hydroxide solution, add to the solution a small piece of ferrous sulphate and 1 drop of ferric chloride solution, and gently warm the mixture; it should acquire no greenish-blue color on the supersaturation with hydrochloric acid.

Dissolve 1 g of Benzaldehyde in 20 ccm of alcohol, dilute the solution with water until a slight turbidity is produced, and add zinc powder and diluted sulphuric acid. Filter the mixture after it has become inodorous, evaporate the filtrate, and warm the residue with 2–3 drops of chlorinated lime solution; neither red nor violet-red color should be produced.

Preserve it in well-stoppered bottles.

BENZINUM PETROLEI.

Petroleum Benzin.

A distillate at low temperature, obtained from petroleum.

A clear, colorless, inflammable, volatile, non-fluorescent liquid, of a non-offensive, characteristic odor, and having a neutral reaction; insoluble in water, soluble in about 5 parts of alcohol. Specific gravity: 0,60–0,67.

At least 80 per cent. by volume of Petroleum Benzin should distil at 50–75°.

Heat 5 ccm of Petroleum Benzin for 5 minutes at about 60° with 1 ccm of ammonia water, 5 ccm of absolute alcohol and 10 drops of silver nitrate solution; the liquid should not turn brown.

Shake it with an equal volume of sulphuric acid; no contraction of volume, rise of temperature nor coloration should occur.

Shake 2 parts of Petroleum Benzin with a cold mixture of 1 part of sulphuric acid and 4 parts of fuming nitric acid; no more than a faint odor resembling benzaldehyde should be perceptible.

Preserve it in well-stoppered bottles, in a cool place.

BENZOË.

(a) *Sumatra Benzoin.*

Obtained from Styrax Benzoin *Dryander.*

Irregular masses, consisting of whitish grains scattered in reddish-brown to grayish-brown ground substance; hard and brittle at ordinary temperature; having an agreeable odor.

When heated in a glass tube, it softens and evolves penetrating vapors, sublimating crystalline substances.

When 0,5 g of the benzoin is warmed at about 40° with 10 ccm of potassium permanganate solution, it evolves an odor of benzaldehyde.

The residue, obtained by thoroughly extracting Sumatra Benzoin with boiling alcohol, when dried, should weigh not more than 15 per cent.

On incineration, it should leave not more than 5 per cent. of solid residue.

(b) *Siam Benzoin.*

Obtained from plants of the genus Styrax, growing in Further India.

Flat or round, brownish lumps, internally of a white color; evolving a very agreeab e odor when heated on a water bath, and penetrating vapors when strongly heated.

Boil the benzoin with alcohol, and filter; the filtrate has an acid reaction, and becomes milky on the addition of water.

When 1 part of the benzoin is heated with 10 parts of carbon disulphide, it softens, and produces a colorless solution, which deposits crystals of benzoic acid on cooling.

When 0,5 g of the benzoin is warmed at about 40° with 10 ccm of potassium permanganate solution, it evolves no odor of benzaldehyde.

The residue, obtained by thoroughly extracting Siam Benzoin with boiling alcohol, when dried, should weigh not more than 5 per cent.

On incineration, it should leave not more than 2 per cent. of solid residue.

BENZOLUM.

Benzene.

$C_6H_6 = 78{,}08$

A clear, colorless, volatile liquid, having a neutral reaction and a characteristic odor; miscible in all proportions with absolute alcohol, ether, and with chloroform, but insoluble in water. It solidifies to a crystalline mass when cooled to 0°, and remelts at 4°. Specific gravity: 0,880–0,887. Boiling point: 79–82°.

Pour it carefully into fuming nitric acid, and, when it has been dissolved, dilute the solution with water; oil globules, with an odor resembling benzaldehyde, are produced.

Frequently shake 20 ccm of Benzene with 10 ccm of sulphuric acid in a glass-stoppered cylinder of 3 cm of inner diameter; the acid layer should not be colored within 30 minutes. Shake 2 ccm of Benzene with 0,5 ccm of sulphuric acid and 1 drop of fuming nitric acid; no color, from green to blue, should be produced.

Mix 20 ccm of Benzene with 20 ccm of the solution, obtained by dissolving 1 part of potassium hydroxide in 9 parts of absolute alcohol, allow the mixture to stand for 1 hour at ordinary temperature, and shake it with 20 ccm of water; the aqueous layer, separated and neutralized with acetic acid, should produce no precipitate on the addition of copper sulphate solution

Evaporate 10 ccm of Benzene on a water bath; no weighable residue should remain.

Preserve it in well-stoppered bottles.

BISMUTUM JODATUM SUBGALLICUM.

Bismuth Oxyiodosubgallate.

$BiC_7H_6O_6J = 521,0$

A grayish-green powder, nearly odorless, and having a slightly offensive taste; when heated carefully, it sublimes a crytalline substance.

The salt is almost insoluble in water, alcohol, or in ether.

When warmed with diluted nitric acid, it dissolves emitting a purple vapor, and when mixed with sodium hydroxide solution, it forms a yellow, turbid solution, which changes to red on shaking.

Dissolve 0,1 g of the salt in 0,5 ccm of diluted hydrochloric acid by warming, and add much water to the solution; a white or yellowish precipitate is produced.

Shake 1 part of the salt with 10 parts of water, and set it aside; the precipitate should contain no yellow substance, and the supernatant liquid should show no more than a slightly acid reaction.

Mix 0,5 g of the salt with 5 ccm of sodium hydroxide solution and then with 0,5 g each of zinc and iron powder, and heat the mixture; no ammonia should evolve.

Dissolve 1 g of the salt in concentrated nitric acid, and heat the solution until the evolution of gas ceases. Transfer the solution to a porcelain crucible, evaporate it to dryness, and heat the residue strongly; the residue of bismuth oxide should weigh at least 0,39 g. Divide the residue into 2 parts; the half, when dissolved in a little hydrochloric acid, should not become dark within 1 hour on the addition of twice its volume of stannous chloride solution, and the other half, when dissolved in 5 ccm of nitric acid, should not be affected by twice its volume of diluted sulphuric acid.

Boil 0,5 g of the salt with 5 ccm of diluted hydrochloric acid, add 5 ccm of water, and completely precipitate the bismuth with hydrogen sulphide; the filtrate should not be affected by half its volume of lime water.

Dissolve 0,1 g of the salt in 5 ccm of diluted nitric acid by the aid of gentle heat, add to the solution 5 ccm of ammonia water, then add 3 ccm of tenth-normal silver nitrate volumetric solution, and filter; the filtrate should become not more than slightly turbid when acidulated with diluted nitric acid.

Dissolve 0,5 g of the salt in 10 ccm of sodium hydroxide solution by the aid of gentle heat, add to the cooled solution 20 ccm each of tenth-normal silver nitrate volumetric solution and concentrated nitric acid, boil the mixture for 3–4 minutes, and dilute it with water to make it measure 100 ccm. Add to the mixture 1 ccm of ammonium ferric sulphate solution, and add tenth-normal ammonium sulphocyanate volumetric solution; not more than 12,1 ccm of the latter should be required to produce a reddish tint.

BISMUTUM SUBCARBONICUM.

Bismuth Subcarbonate.

A white or yellowish-white, amorphous powder, inodorous and permanent in the air; insoluble in water, or in alcohol.

The salt is dissolved by nitric or hydrochloric acid with copious effervescence; the solution produces a white precipitate with much water.

It should be clearly dissolved by nitric acid. Dilute the solution with a little water; the clear solution should not be rendered turbid by silver nitrate solution, barium nitrate solution, or by twice its volume of diluted sulphuric acid. Mix the same solution with an excess of ammonia water, and filter; the filtrate should be quite colorless, and should neither be affected by hydrogen sulphide water, nor become turbid with sodium phosphate solution.

On heating 1 g of the salt with an excess of sodium hydroxide solution, no ammonia should be evolved.

1 g of the salt should leave, on gentle ignition, 0,85–0,91 g of yellow bismuth oxide. Dissolve the residue in 10 ccm of hydrochloric acid; 5 ccm of the solution should not become dark within 1 hour when mixed with 1,5 ccm of stannous chloride solution. Dilute 2 ccm of the same solution with water, completely precipitate the bismuth with hydrogen sulphide, and filter; the filtrate should leave no weighable solid residue on evaporation and ignition.

Mix 0,2 g of the salt with 1 ccm of sulphuric acid, and pour 2 ccm of ferrous sulphate solution upon the mixture, so as to form 2 layers; no brownish zone should form at the line of contact of the 2 liquids.

BISMUTUM SUBGALLICUM.

Bismuth Subgallate.

$BiC_7H_7O_7 = 411{,}09$

A yellow, amorphous powder, odorless and tasteless; insoluble in water, alcohol, or in ether. On ignition, it at first chars without melting, and finally leaves a yellow residue.

Shake the salt with an excess of hydrogen sulphide water; a blackish-brown precipitate results. Filter off the precipitate, boil the filtrate, and cool; the addition of diluted ferric chloride solution, drop by drop, produces a bluish-black coloration.

Gently ignite 1 g of the salt, dissolve the residue in a small quantity of nitric acid, just sufficient to dissolve it, cautiously evaporate the solution to dryness, and ignite again; at least 0,52 g of bismuth oxide should remain. Dissolve the residue in nitric acid, and dilute the solution with water to make it measure 20 ccm; 5 ccm each of the solution should produce no more than an opalescence with barium nitrate solution, or with silver nitrate solution, nor should it be affected by twice its volume of diluted sulphuric acid. Add an excess of ammonia water to 4 ccm of the same solution, and filter; the filtrate should be quite colorless, should neither be affected by hydrogen sulphide water, nor leave any weighable solid residue on evaporation and ignition.

A mixture of 1 g of the salt and 3 ccm of stannous chloride solution should not become dark within 1 hour.

Shake 1 g of the salt with 10 ccm of alcohol, filter, and evaporate the filtrate ; no weighable residue should remain.

1 g of the salt should dissolve colorlessly in 5 ccm of sodium hydroxide solution; the resulting solution should evolve no ammonia on heating with 0,5 g each of zinc and iron powder.

O BISMUTUM SUBNITRICUM.

Bismuth Subnitrate.

Bismuth, *in coarse powder*	1 *pt.*
Nitric Acid (Specific gravity: 1,2)	5 *pts.*

Introduce bismuth in small portions into nitric acid, previously heated to 75–90°, and, when the action of nitric acid has begun to weaken, facilitate the dissolution of bismuth by strong heat. Allow the solution to stand for a few days, then decant the clear supernatant liquid, and evaporate it to crystallization; wash the crystals once or twice with a little distilled water, containing nitric acid.

The crystals	1 *pt.*
Distilled Water	4 *pts.*
Boiling Distilled Water	21 *pts.*
Cold Distilled Water	25 *pts.*

Triturate the crystals with distilled water, and introduce the mixture, under stirring, into boiling distilled water; quickly pour off the supernatant liquid as soon as the precipitate has subsided, and collect the precipitate in a funnel. When the liquid has thoroughly dropped, wash the precipitate with cold distilled water, and dry at 30°.

A white, microcrystalline, heavy powder, showing almost homogeneous, fine prisms when examined under the microscope, and having an acid reaction.

When ignited, it evolves yellowish-red vapors, and finally leaves 79–82 per cent. of bismuth oxide.

0,5 g of the salt should be clearly and entirely dissolved by 25 ccm of diluted sulphuric acid (Specific gravity: 1,109–1,114), with no evolution of carbon dioxide. Mix 10 ccm of the solution with an excess of ammonia water, and filter; the filtrate should be quite colorless. Dilute 10 ccm of the same solution with much water, saturate it with hydrogen sulphide, and filter; the filtrate should leave no weighable solid residue on evaporation and ignition.

Ignite 1 g of the salt until it evolves no vapor, dissolve the residue is a small quantity of hydrochloric acid, and mix the solution with twice its volume of stannous chloride solution; no dark color should develop within 1 hour.

Dissolve 0,5 g of the salt in 5 ccm of nitric acid; the clear solution should produce no more than an opalescence with 0,5 ccm of silver nitrate solution, and no change with 0,5 ccm of barium nitrate solution, diluted with an equal volume of water, nor should it evolve any ammonia on heating with an excess of sodium hydroxide solution.

O BISMUTUM SUBSALICYLICUM.

Bismuth Subsalicylate.

$BiC_7H_5O_4 = 361,08$

A white or yellowish-white, amorphous powder, odorless and tasteless; nearly insoluble in water, or in alcohol. When ignited, it at first chars without melting, and finally leaves a yellow substance.

It is colored violet by diluted ferric chloride solution, and blackish-brown by hydrogen sulphide water.

Shake 0,5 g of the salt with 5 ccm of water, and filter; the filtrate should not immediately redden a blue litmus paper.

Gently ignite 1 g of the salt, dissolve the residue in a minute quantity of nitric acid, carefully evaporate the solution to dryness, and ignite again; at least 0,63 g of bismuth oxide should remain. Dissolve the residue in nitric acid, and add water to make the solution measure 20 ccm; 5 ccm each of the solution should neither produce any more than an opalescence with barium nitrate solution, or with silver nitrate solution, nor produce any change with twice its volume of diluted sulphuric acid. Add an excess of ammonia water to 4 ccm of the same solution, and filter; the filtrate should be colorless, produce no change with hydrogen sulphide water, and leave no weighable solid residue on evaporation and ignition.

A mixture of 1 g of the salt and 3 ccm of stannous chloride solution should not become dark within 1 hour.

Heat 0,5 g of the salt with 5 ccm of sodium hydroxide solution and 0,5 g each of zinc and iron powder; no ammonia should be evolved.

Preserve it protected from light.

BISMUTUM TRIBROMPHENYLICUM.

Bismuth Tribromphenolate.

A yellow, neutral powder, odorless and tasteless; insoluble in water, or in alcohol.

When heated with diluted sodium hydroxide solution, it dissolves leaving yellow bismuth oxide. Filter the mixture after cooling; the filtrate produces a white precipitate on the addition of hydrochloric acid.

Evaporate 1 g of the salt with nitric acid, and ignite the residue; at least 0,53 g of bismuth oxide should remain. Dissolve the residue in about 10 ccm of hydrochloric acid, and mix the solution with 3 ccm of stannous chloride solution; no dark color should develop within 1 hour.

Shake 0,5 g of the salt with 5 ccm of alcohol, and filter; 1 ccm of the filtrate should neither become turbid nor produce any flocculent precipitate on the addition of 15 ccm of water.

Shake 1 g of the salt with 10 ccm of sodium hydroxide solution; the liquid should not be colored.

BOLUS ALBA.

White Bole.

A white or whitish, earthy, friable mass, or powder, chiefly composed of hydrated aluminium silicate, adhering to what it touches. It forms a plastic mass of a faint characteristic odor when moistened with water, and crumbles but not dissolves when thrown into water.

White Bole should not effervesce on pouring hydrochloric acid upon it, and should leave no sandy residue on the elutriation.

Shake 1 g of White Bole with 25 ccm of water, and filter; the filtrate should be neutral and produce no more than a faint opalescence with silver nitrate solution.

BORAX.

Borax.

$Na_2B_4O_7+10H_2O=382,16$

White, hard crystals, or a crystalline mass; soluble in about 25 parts of water, and in 0,5 parts of boiling water, showing a weak alkaline reaction, abundantly soluble in glycerin, nearly insoluble in alcohol. When heated, it dissolves in its water of crystallization, then swells up, and finally leaves a white, porous mass; when heated further, it fuses to a colorless, glassy substance.

When heated in a non-luminous flame, it imparts a yellow color to it. Moisten a turmeric paper with an aqueous solution of the salt, acidulated with hydrochloric acid, and dry it; the paper turns brownish-red, changing to greenish-black by moistening with a little ammonia water.

An aqueous solution (1 : 50) of the salt should not be affected by hydrogen sulphide water, or by ammonium oxalate solution, nor should it effervesce when acidified with nitric acid. The acidified solution should produce no more than an opalescence with barium nitrate solution, or with silver nitrate solution.

50 ccm of an aqueous solution (1 : 50) of the salt, acidified with hydrochloric acid, should not immediately become blue on the addition of 0,5 ccm of potassium ferrocyanide solution.

BROMUM.

Bromine.

Br=79,92

A dark reddish-brown, volatile liquid, emitting pungent, yellowish-red fumes at ordinary temperature; soluble in 30 parts of water, easily soluble in alcohol, ether, carbon disulphide, and in chloroform, forming a reddish-brown solution. Specific gravity: about 3,0.

Bromine should dissolve in sodium hydroxide solution, and the solution should remain clear for a long time.

Shake a saturated, aqueous solution of Bromine with an excess of iron powder, and filter; the filtrate should produce no blue color on the addition of ferric chloride solution and starch solution.

Preserve it with care, in glass-stoppered bottles, in a cool place.

BULBUS SCILLAE.

Squill.

The fleshy scales of the bulb of Urginea maritima *Bak.*, cut into slices and dried.

Yellowish-white, translucent, horny pieces, attaining 5 cm in length, 5 mm in thickness; brittle and easy to draw moisture; nearly odorless, and having a disagreeable, mucilaginous, bitter taste.

The epidermis of both surface is provided with stomata. The mesophyll consists chiefly of almost round cells, free from starch grains, contains numerous raphide-cells, and encloses parallel, collateral vascular bundles.

The powder should exhibit an abundant bundles of raphides of oxalate, but contain no sclerenchymatous cells; the starch grains should be found only scarcely.

Preserve it with care and well-closed.

Maximum dose at a time: 0,2 g.
Maximum dose for a day: 1,0 g.

CAFFEÏNO-NATRIUM BENZOÏCUM.

Caffeine Sodio-Benzoate.

Caffeine	50 *pts.*
Sodium Benzoate	59 *pts.*
Distilled Water	200 *pts.*

Dissolve caffeine and sodium benzoate in distilled water, and evaporate the solution to dryness.

A white, amorphous powder, or granular masses, odorless and having a bitter taste; soluble in 2 parts of water, and in 40 parts of alcohol, forming a colorless solution.

When heated in a glass tube, it evolves white fumes, which condense to minute crystals of caffeine at the cold part of the tube.

An aqueous solution (1 : 10) of the compound produces, with hydrochloric acid, white crystals soluble in ether, and also yields, with ferric chloride solution, a light reddish-brown precipitate, which redissolves on adding hydrochloric acid and alcohol.

Warm it with chloroform, and filter; the filtrate leaves, on evaporation, a crystalline residue, having the reaction of caffeine.

An aqueous solution (1 : 5) of the compound should have, if any, not more than a slightly alkaline reaction.

0,1 g of the compound should dissolve in 1 ccm of sulphuric acid without effervescence or coloration.

An aqueous solution (1 : 20) of the compound should not be affected by hydrogen sulphide water, or by barium nitrate solution; 2 volumes of the same aqueous solution, mixed with 3 volumes of alcohol and acidified with nitric acid, should produce no more than an opalescence with silver nitrate solution.

Gently ignite 0,17 g of the compound, dissolve the residue in 30 ccm of water, and filter; the filtrate, acidified with nitric acid, should produce no more than an opalescence with silver nitrate solution.

Dissolve 0,5 g of the compound in 10 ccm of water, add 1 ccm of sodium hydroxide solution, and shake it with 3 successive portions of 10 ccm each of chloroform for 5 minutes. Then collect the chloroform solutions, evaporate on a water bath, and dry the residue at 100°; the anhydrous caffeine should weigh at least 0,2 g.

Preserve it with care.

Maximum dose at a time: 1 g.
Maximum dose for a day: 3 g.

CAFFEÏNO-NATRIUM SALICYLICUM.

Caffeine Sodio-Salicylate.

Caffeine	5 *pts.*
Sodium Salicylate	6 *pts.*
Distilled Water	20 *pts.*

Dissolve caffeine and sodium salicylate in distilled water, and evaporate the solution to dryness.

A white, amorphous powder, or white, granular masses, odorless and having a sweet, slightly bitter taste; soluble in 2 parts of water, and in about 50 parts of alcohol.

An aqueous solution (1 : 10) of Caffeine Sodio-Salicylate acquires, with ferric chloride solution, a violet color, and produces, with hydrochloric acid, white crystals soluble in ether.

Warm it with chloroform, and filter; the filtrate leaves, on evaporation, a crystalline residue, having the reaction of caffeine.

An aqueous solution (1 : 5) of the compound should be colorless or almost colorless, and, when allowed to stand for a while, the color, if any, should be faintly light red; also the acid reaction, if any, should be very slight.

0,1 g of the compound should dissolve in 1 ccm of sulphuric acid without effervescence or coloration.

An aqueous solution (1 : 20) of the compound should not be affected by hydrogen sulphide water, or by barium nitrate solution; 2

volumes of the same aqueous solution, mixed with 3 volumes of alcohol and acidified with nitric acid, should produce no more than an opalescence with silver nitrate solution.

Dissolve 0,5 g of the compound in 10 ccm of water, add to the solution 1 ccm of sodium hydroxide solution, and shake it with 3 successive portions of 10 ccm each of chloroform for 5 minutes. Then collect the chloroform solutions, evaporate on a water bath, and dry the residue at 100°; the anhydrous caffeine should weigh at least 0,2 g.

Preserve it with care.

Maximum dose at a time: **1** g.
Maximum dose for a day: 3 g.

CAFFEÏNUM.

Caffeine.

$C_8H_{10}N_4O_2+H_2O=212,18$

White, flexible, silky, glistening needles, having a slightly bitter taste; soluble in 80 parts of water, forming a colorless and neutral solution, soluble in 2 parts of boiling water, changing to a crystalline magma when cooled, also soluble in chloroform, and in about 50 parts of alcohol, but slightly soluble in ether; efflorescent in the air, and losing its water of crystallization at 100°.

When gently heated, it partly volatilizes at about 100,° and completely sublimes at 180°. Melting point: 230–234°.

An aqueous solution of Caffeine produces, with tannic acid solution, a precipitate, which is soluble in an excess of the reagent.

Dissolve 0,1 g of Caffeine in 10 ccm of chlorine water, and evaporate the solution on a water bath; the residue has a yellowish-red color, and acquires a violet-red color when mixed with a little ammonia water.

Its cold, saturated, aqueous solution should not become turbid with chlorine water, or with iodine solution, nor should the solution acquire any coloration with ammonia water.

0,1 g of Caffeine should dissolve in 1 ccm of sulphuric acid or nitric acid without coloration.

Preserve it with care.

Maximum dose at a time: 0,5 g.
Maximum dose for a day: 1,5 g.

CALCARIA CHLORATA.

Chlorinated Lime. *Bleaching Powder.*

A white or whitish powder, having an odor resembling chlorine, and partly soluble in water.

Chlorinated Lime is dissolved, with evolution of chlorine, by acetic acid; the solution, diluted with water and filtered, yields a white precipitate with ammonium oxalate solution.

It contains not less than 25 per cent. of available chlorine (Cl = 35,46).

Triturate 0,5 g of Chlorinated Lime with 20 ccm of water, and to the mixture add 1 g of potassium iodide and 20 drops of hydrochloric acid; at least 35,2 ccm of tenth-normal sodium thiosulphate volumetric solution should be required to combine with the iodine set free.

Preserve it well-closed, in a cool place.

CALCARIA SULFURATA.

Sulphurated Lime.

Exsiccated Calcium Sulphate	70 *pts.*
Charcoal Powder	10 *pts.*
Starch	2 *pts.*

Mix them thoroughly, pack the mixture into a crucible with cover, and heat it to bright redness until the contents lose their black color. Allow the crucible to cool, reduce the product to a powder, and at once transfer it to well-closed bottles.

A pale gray powder, slightly evolving the odor of hydrogen sulphide, and slowly decomposing in the air; sparingly soluble in water, somewhat soluble in boiling water, but insoluble in alcohol.

Sulphurated Lime dissolves in diluted acetic acid, with abundant evolution of hydrogen sulphide gas, forming a turbid solution; the clear filtrate yields, with ammonium oxalate solution, a white precipitate, soluble in diluted hydrochloric acid.

Dissolve 2,08 g of copper sulphate in 50 ccm of water, heat the solution to boiling, gradually add to the solution 1 g of Sulphurated Lime, warm for 15 minutes on a water bath, and then filter after cooling; the filtrate should acquire no coloration with 1 drop of potassium ferrocyanide solution.

Preserve it in well-stoppered bottles.

O CALCARIA USTA.

Quicklime.

$CaO = 56{,}07$

A whitish, compact mass, which, when mixed with half its weight of water, is gradually converted into a white powder, develops heat at the same time, and produces a homogeneous paste with 3–4 times its weight of water.

Quicklime dissolves almost completely in nitric acid without effervescence; the solution, diluted with water, produces, after adding an excess of sodium acetate solution, a white precipitate on the addition of ammonium oxalate solution.

Preserve it well-closed.

CALCIUM CARBONICUM PRAECIPITATUM.

Precipitated Calcium Carbonate.

$CaCO_3 = 100,8$

A white, micro-crystalline powder; almost insoluble in water.

The salt dissolves entirely with effervescence in acetic acid, and the solution yields a white precipitate with ammonium oxalate solution.

Agitate 3 g of the salt with 50 ccm of water, which has been freshly boiled and cooled, and then filter; the filtrate should not turn a red litmus paper blue, and, when evaporated, should leave not more than 0,01 g of solid residue.

An aqueous solution (1 : 50), obtained by boiling the salt with diluted acetic acid, should not be immediately affected by barium nitrate solution, should produce, with silver nitrate solution, no more than an opalescence even after 5 minutes, and should produce no change on being supersaturated either with ammonia water, or with lime water.

Dissolve 1 g of the salt in 50 ccm of water, previously acidified with hydrochloric acid; the resulting solution should produce no blue color with 0,5 ccm of potassium ferrocyanide solution.

CALCIUM CHLORATUM.

Calcium Chloride.

$CaCl_2 + 6H_2O = 219,09$

Colorless, prismatic crystals, or a white, crystalline powder, deliquescent in the air; soluble in 1,5 parts of water, and in 3 parts of alcohol, showing a neutral reaction.

An aqueous solution of the salt yields, with ammonium oxalate solution, a white precipitate, insoluble in acetic acid, and silver nitrate solution, added to the same solution, produces a white, curdy precipitate, completely soluble in ammonia water.

Mix 10 ccm of its aqueous solution (1 : 10) with 3 ccm of stannous chloride solution; no dark color should be produced within 1 hour.

Mix 5 ccm of its aqueous solution (1 : 10) with diluted hydrochloric acid and zinc iodide and starch solution; the mixture should immediately produce no blue color.

An aqueous solution (1 : 20) of the salt should not be affected by ammonia water, even on boiling; the same solution, acidified with diluted hydrochloric acid, should not be affected by barium chloride solution, diluted sulphuric acid, or by hydrogen sulphide water.

Add 10 ccm of ammonium oxalate solution to 10 ccm of boiling aqueous solution (1 : 20) of the salt, and filter after 3 hours; the filtrate, on evaporation and subsequent ignition, should leave not more than 0,002 g of solid residue.

20 ccm of its aqueous solution (1 : 20), acidified with diluted hydrochloric acid, should immediately produce no blue color with 0,5 ccm of potassium ferrocyanide solution.

Preserve it in well-stoppered bottles.

CALCIUM HYPOPHOSPHOROSUM.

Calcium Hypophosphite.

$Ca(H_2PO_2)_2 = 170{,}18$

Colorless, transparent crystals, or a white, crystalline powder, odorless and permanent in the air; soluble in 7 parts of water, but insoluble in alcohol.

When heated in a test tube, the salt evolves spontaneously inflammable vapors, and leaves after cooling a reddish-brown residue.

Its aqueous solution yields, with ammonium oxalate solution, a white precipitate, insoluble in acetic acid, but easily soluble in diluted hydrochloric acid; an excess of its aqueous solution, acidified with hydrochloric acid, when added to mercuric chloride solution, yields a precipitate, which is white at first, but afterwards turns gray.

Its aqueous solution (1 : 20) should react neutral or slightly acid, nor should it be any more than slightly turbid.

Its clear aqueous solution (1 : 20) should produce no turbidity with calcium sulphate solution, and the same solution, acidified with nitric acid, should produce no more than an opalescence with barium nitrate solution. The same solution, when filtered after the addition of ammonium chloride and ammonium carbonate solutions, should not be rendered turbid by sodium phosphate solution. The same solution, acidified with acetic acid, should immediately produce no turbidity with lead acetate solution.

Mix 1 g of the salt with 3 ccm of stannous chloride solution; no dark color should be produced within 1 hour.

CALCIUM LACTICUM.

Calcium Lactate.

$Ca(C_3H_5O_3)_2 + 5H_2O = 308,26$

Colorless needles, or white, granular masses, or a white powder; almost odorless; soluble in 20 parts of water, showing a neutral reaction.

An aqueous solution of Calcium Lactate yields, with ammonium oxalate solution, a white precipitate, insoluble in acetic acid. Heat the same solution with diluted sulphuric acid and potassium permanganate solution; the odor of acetaldehyde is developed.

An aqueous solution (1 : 20) of the salt should be colorless or slightly yellowish and clear; 20 ccm of the same solution should not be reddened by 2 drops of phenolphthalein solution, and the mixture should require not more than 1 ccm of tenth-normal potassium hydroxide volumetric solution to produce a red color.

Stir 0,5 g of the salt with 1 ccm of sulphuric acid; the mixture should emit no odor of volatile fatty acids, even on warming.

An aqueous solution (1 : 20) of the salt should not be affected by ammonia water, even on boiling; the same solution, acidified with diluted hydrochloric acid, should not be affected by barium chloride solution, diluted sulphuric acid, or by hydrogen sulphide water.

Add 8 ccm of ammonium oxalate solution to 10 ccm of boiling, aqueous solution (1 : 20) of the salt, and filter after 3 hours; the filtrate, on evaporation and subsequent ignition, should leave not more than 0,005 g of solid residue.

When dried at 120°, it should lose 25–29,5 per cent. of its weight.

Incinerate 1 g of the salt, previously dried to constant weight at 120°, and dissolve the residue in 25 ccm of half-normal hydrochloric acid volumetric solution ; the resulting solution should require not more than 7,1 ccm of half-normal potassium hydroxide volumetric solution for neutralization of the excess of the acid (Indicator: Methyl orange solution).

Preserve it in well-stoppered bottles.

CALCIUM PHOSPHORICUM PRAECIPITATUM.

Precipitated Calcium Phosphate.

$CaHPO_4 + 2H_2O = 172{,}15$

Calcium Carbonate	20 *pts.*
Hydrochloric Acid	50 *pts.*
Distilled Water	50 *pts.*
Slaked Lime	1 *pt.*
Phosphoric Acid	1 *pt.*
Sodium Phosphate	61 *pts.*
Warm Distilled Water	300 *pts.*

Gradually pour a mixture of hydrochloric acid and water upon calcium carbonate under stirring, warm the mixture when the evolution of carbon dioxide has diminished, and decant the supernatant liquid. Add an excess of chlorine water to the liquid, heat again until the odor of chlorine diminishes, add slaked lime to the mixture, allow it to stand for 30 minutes at 35–40°, and then filter. After cooling add phosphoric acid to the filtrate, then gradually add to it, under stirring, the sodium phosphate solution, prepared by dissolving the salt in warm distilled water, then filtering and cooling to 20–25°, and thoroughly stir the precipitate until it becomes crystalline. Collect the precipitate on a filtering cloth, wash it repeatedly with water until the washing, acidified with nitric acid, produces no more than a slight opalescence with silver nitrate solution, remove the water by pressing, dry it by gentle heat, and reduce it to a fine powder.

A light, white, crystalline powder ; almost insoluble in water, sparingly soluble in cold acetic acid, and easily soluble without effervescence in hydrochloric or nitric acid.

When moistened with silver nitrate solution, the salt acquires a yellow color. Boil the salt with acetic acid, and filter; the filtrate yields a white precipitate with ammonium oxalate solution.

1 g of the salt, mixed with 3 ccm of stannous chloride solution, should produce no dark color within 1 hour.

Shake 1 part of the salt with 20 parts of water, and filter; the filtrate, after the addition of acetic acid, should neither be affected by barium nitrate solution, nor produce any more than an opalescence with silver nitrate solution.

Its solution (1 : 20) in water, previously acidified with nitric acid, should produce a purely white precipitate with an excess of ammonia water and hydrogen sulphide water.

On ignition, it should lose 25–26 per cent. of its weight, and the residue should acquire not more than a slightly yellow color, when moistened with silver nitrate solution.

O CALCIUM SULFURICUM USTUM. *Gypsum ustum.*

Exsiccated Calcium Sulphate. *Burnt Gypsum.*

A white powder.

1 part of Exsiccated Calcium Sulphate should solidify within 5 minutes on the addition of 0,5 parts of water.

Preserve it well-closed.

O CAMPHORA DEPURATA.

Purified Camphor.

$C_{10}H_{16}O = 152,18$

Colorless, translucent, or white, crystalline masses, of a tough consistency, or a white, crystalline powder; having a characteristic, penetrating odor and a slightly bitter, pungent taste, followed by a sensation of cold; completely volatilizing at the temperature of water bath, and burning, when ignited, with a smoky, luminous flame; almost insoluble in water, easily soluble in alcohol, ether, and in chloroform, also soluble in fixed oils. Melting point: 175–180°. Boiling point: 204°.

Dissolve 10 g of Purified Camphor in absolute alcohol to make the solution measure 50 ccm at ordinary temperature; optical rotation ($\alpha D20°$) of the resulting solution is about +8,8.°

To pulverize Purified Camphor, it should be moistened either with alcohol or with ether.

Preserve it in well-stoppered bottles, in a cool place.

CAMPHORA MONOBROMATA.

Monobromated Camphor.

$C_{10}H_{15}BrO = 231,09$

Colorless, prismatic needles or scales, permanent in the air, having somewhat mild, camphoraceous odor and taste; almost insoluble in water, but easily soluble in alcohol, ether, and in chloroform. Melting point: about 76°.

Incinerate 0,1 g of Monobromated Camphor with 0,5 g each of sodium carbonate and potassium nitrate, and dissolve the residue in warm water; the solution, acidified with nitric acid, yields a yellowish-white precipitate with silver nitrate solution.

Dissolve 0,1 g of Monobromated Camphor in 1 ccm of sulphuric acid; the solution should be colorless, or colored not more than slightly yellowish.

Shake it with water, and filter; the filtrate should not redden a blue litmus paper.

Its alcoholic solution, when boiled with silver nitrate solution, should produce no precipitate.

On incineration, it should leave not more than 0,1 per cent. of solid residue.

Preserve it with care.

Maximum dose at a time: 0,3 g.
Maximum dose for a day: 1 g.

CANTHARIDES.

Cantharides. *Blistering Flies.*

The dried beetles, Epicauta Gorhami *Mars.*

1,5–1,8 cm in length and 4–5 mm in breadth. The elytra is of a dull blackish color, and provided with each 1 line, consisting of yellowish hairs, along the middle and either margin. The head is nearly heart-shaped, its hinder part being of a ochrous color; the abdomen is black and shining, and shows 4–5 rings formed of yellowish hairs.

Cantharides has a strong, disagreeable odor.

Mix 10 g of Cantharides, in medium powder, with 100 ccm of chloroform and 2 ccm of hydrochloric acid, set aside for 24 hours with occasional shaking, and then filter; take 50 ccm of the filtrate in a flask, previously dried and weighed, and distil off the chloroform. On the residue pour 5 ccm of petroleum benzin, set it aside well-stoppered for 12 hours with occasional shaking, and filter through a filter paper of 5 cm in diameter, previously dried, weighed, and then moistened with petroleum benzin. On the insoluble part pour 10 ccm each of petroleum benzin repeatedly for 2 times, and filter through the same filter paper as before; after drying the filter paper and the flask, wash them with a little water containing 1 drop of ammonium carbonate solution in every 10 ccm, and, when the washing has become almost colorless, wash once more with 5 ccm of water. After drying the flask and the filter paper at 40–50°, put the latter together with its contents into the flask, and again dry it at 100°; the crystalline residue should weigh at least 0,1 g.

On incineration, it should leave not more than 8 per cent. of solid residue.

Preserve it with care, in well-closed containers.

Maximum dose at a time: 0,03 g.
Maximum dose for a day: 0,1 g.

CAPSULAE.

Capsules.

In general, in the form of a pair of cylindrical sack, closed at one end and to be inserted each other, made of gelatin, with the addition of glycerin or white sugar.

Capsules should be odorless, translucent and elastic; when thrown into warm water at 39–40°, and shaken frequently, they should dissolve within 10 minutes, forming a colorless, clear and odorless solution, of neutral or slightly acid reaction.

CAPSULAE COPAÏVAE.

Copaiba Capsules.

Each capsule contains 0,5 g of Balsam of Capaiba.

CARBO OSSIUM PULVERATUS.

Powdered Animal Charcoal.

Pulverize animal charcoal, extract it several times with diluted hydrochloric acid by heat, and then wash it with boiling water, until a portion of the powder leaves not more than a slight solid residue on incineration. Dry the powder, ignite it in a well-covered crucible, and transfer it into containers while still warm.

A black powder. Boil it with water; the latter should not be acid to a litmus paper. Boil it with diluted hydrochloric acid, and filter; the filtrate should not be affected by hydrogen sulphide water.

CARYOPHYLLI.

Cloves.

The dried flower-buds of Eugenia aromatica *Baill.*

12–17 mm in length, of a brown color. The ovary is long cylindrical and obscurely 4-angled, furnished with 2 cells in its upper part, and terminated by 4 calyx-teeth. The latter bears almost round, light brown petals in its inner side, which enclose numerous stamens and are globular in shape.

Under the microscope, cross sections through the middle part of the ovary show many large ovate secrete-reservoirs near periphery; vascular bundles internally, arranged in 2 concentric circles and accompanied by a few fibres and cell-rows containing rosette aggregates of oxalate; parenchyma, inside of the outer circle of vascular bundles, having many vacant spaces.

It exudes oil when pressed.

Cloves have characteristic, aromatic, pungent odor and taste.

Preserve it well-closed.

CATECHU.

Catechu.

(a) *Gambir.*

The dry extract prepared from the leaves and twigs of Uncaria Gambir *Roxb.*

It consists of brownish, internally light-colored, brittle masses.

(b) *Pegu-Catechu.*

The dry extract prepared from the heart-wood of Acacia Catechu *Willd.* and Acacia Suma *Kurz.*

It consists of externally and internally dark brown masses, sometimes porous, and with conchoidal fractures.

Catechu has an astringent, somewhat bitter taste, followed by a sense of sweetness.

Its diluted alcoholic solution develops a green color with ferric chloride solution.

On boiling 1 part of Catechu with 10 parts of water, a turbid, brownish-red, acid solution is obtained, which, when decanted from insoluble part, yields an abundant, brown precipitate on cooling. The insoluble part, when washed with boiling water and dried at 100°, should not exceed 15 per cent.

Thoroughly extract the catechu with boiling alcohol; the insoluble residue, dried at 100°, should not exceed 30 per cent.

On incineration, it should leave not more than 6 per cent. of solid residue.

CAUTSCHUC.

Caoutchouc.

The purified coagulum, separated out of the milky juice of various tropical trees belonging to Moraceae, Urticaceae, Euphorbiaceae and Apocynaceae.

Brown, semi-transparent, elastic plates or masses; insoluble in water, or in alcohol, but slowly soluble in benzene, petroleum benzin, chloroform, and in carbon disulphide, forming a turbid, thick solution.

When soaked in boiling water, Caoutchouc becomes neither soft nor plastic.

When 1 part of Caoutchouc is treated with 7,5 parts of petroleum benzin, it should be dissolved within a few hours, leaving no residue.

Ignite 0,2 g of minute pieces of Caoutchouc by carefully throwing it into 2 g of a fused mixture, consisting of 2 parts of potassium nitrate and 1 part of exsiccated sodium carbonate; the fused mass, after cooling, should dissolve in water without leaving any residue, and the solution (1 : 50), after being acidified with nitric acid, should produce no change with barium nitrate solution.

CERA ALBA.

White Wax.

Yellow Wax, bleached by exposing to sunlight.

White or whitish masses, melting at about 65° to a colorless liquid. Specific gravity: 0,965–975. Acid value: 4,6–7,9. Ester value: 80,4–93,5.

White Wax should be free from rancid odor.

Mix 2 parts of alcohol with 7 parts of water, and set it aside at 15° until the air bubbles disappear. Throw the White Wax, made into globules, into the mixture; it should either remain suspended in the liquid, or should do so, when the specific gravity of the liquid is made 0,965–0,975 by adding more water. The globules of the wax for this purpose should be prepared by melting it at a temperature as low as possible, and pouring it, drop by drop, into a glass vessel containing alcohol, and should be used after leaving 24 hours in the air.

Boil 1 g of the wax with 20 ccm of alcohol for 2–3 minutes, and filter after 1 hour; the colorless, cold solution thus obtained should not more than slightly redden a blue litmus paper. The same solution should not become exceedingly turbid on the addition of water.

Mix 1 g of the wax with 10 ccm of water and 3 g of sodium carbonate, heat the mixture till it boils vigorously, and then cool; the wax should separate on the surface of the solution, which should show no more than an opalescence.

Boil 3 g of the wax with 25 ccm of absolute alcohol on a water bath under reflux condenser, and then add 1 ccm of phenolphthalein solution; on titration, 0,5–0,85 ccm of half-normal alcoholic potassium hydroxide volumetric solution should be required to produce a red color. Add to the mixture 20 ccm more of the same volumetric solution, heat on a water bath for 1 hour, and immediately titrate with half-normal hydrochloric acid volumetric solution; 10–11,4 ccm of the latter volumetric solution should be required in order to neutralize the excess of potassium hydroxide.

CERA FLAVA.

Yellow Wax.

A product, prepared by melting the honey-comb of the bee, after the removal of honey.

Light yellow or yellow masses, melting at 63–67° to a clear liquid, having the honey-like odor. Specific gravity: 0,962–0,972. Acid value: 4,6–8. Ester value: 80,4–93,6.

Mix 2 parts of alcohol with 7 parts of water, and set aside at 15° until the air bubbles disappear. Throw the Yellow Wax, made into globules, into the mixture; it should either remain suspended in the liquid, or should do so, when the specific gravity of the liquid is made 0,962–0,972 by adding more water. The globules of the wax for this purpose should be prepared by melting it at a temperature as low as possible, and pouring it, drop by drop, into a glass vessel containing alcohol, and should be used after leaving for 24 hours in the air.

Dissolve a small quantity of the wax in about 5 times its weight of chloroform, and shake the solution with hydrochloric acid; the latter should not be colored red.

Add a saturated solution of boric acid to the Yellow Wax, and dry it on a water bath; it should not be colored reddish-brown.

In other respects it should conform to the tests for identity and purity under *Cera alba*.

CERIUM OXALICUM.

Cerium Oxalate.

$Ce_2(C_2O_4)_3 + 9H_2O = 706,67$

A white or almost white, granular powder, without odor or taste, permanent in the air; insoluble in water, or in alcohol.

From a solution of Cerium Oxalate in hydrochloric acid, sodium hydroxide solution produces a gelationous precipitate, which is insoluble in an excess of the reagent. The filtrate, supersaturated with acetic acid, produces a white precipitate with calcium chloride solution.

It should dissolve, with no effervescence, in hydrochloric acid. Add sodium hydroxide solution to the solution, and filter off the gelatinous precipitate; the filtrate should produce no precipitate on heating.

with an excess of ammonium chloride solution, even on the further addition of ammonium sulphide.

On gentle ignition, 1 g of the salt should leave about 0,48 g of a yellow or yellowish-red, neutral powder, which, when dissolved in 5 ccm of hydrochloric acid and diluted with water up to 20 ccm, should produce no precipitate with hydrogen sulphide water. The same solution, supersaturated with ammonia water and filtered, should produce no precipitate with ammonium oxalate solution, or with sodium phosphate solution.

Shake 1 part of the salt with 50 parts of water, and filter ; the filtrate should produce no more than a distinct opalescence with silver nitrate solution, and no more than a turbidity with barium nitrate solution.

When heated with sodium hydroxide solution, it should evolve no ammoniacal odor.

Preserve it with care.

Maximum dose at a time: 0,3 g.
Maximum dose for a day: 1 g.

CETACEUM.

Spermaceti.

A purified, solid constituent of the fatty substance, contained chiefly in the cavities in the head of Physeter macrocephalus *Lacepéde.*

White, crystalline, brittle masses, with scaly fracture and pearly lustre; melting at 45–50° to a clear, colorless liquid, with a slight but not rancid odor. Specifie gravity: about 0,943. It is soluble in ether, chloroform, carbon disulphide, and in boiling alcohol.

1 part of Spermaceti should be completly soluble in about 50 parts of boiling alcohol. Allow the solution to deposit crystals at ordinary temperature; the solution obtained by decanting should be neutral to litmus papers, nor should it produce any flocculent precipitate, when mixed with an equal volume of water.

Boil 1 g of Spermaceti with 1 g of exsiccated sodium carbonate and 50 ccm of alcohol, and then filter; the filtrate, on being acidified with acetic acid, may become turbid but should produce no precipitate.

CHARTA RUBEFACIENS.

Rubefacient Paper.

Cantharides, *in fine powder*	1 *pt.*
Yellow Wax	8 *pts.*
Spermaceti	3 *pts.*
Olive Oil	4 *pts.*
Turpentine	1 *pt.*
Common Water	10 *pts.*

Mix them, boil the mixture for 2 hours with constant stirring, and strain it through muslin without applying any pressure. Transfer the solidified mass to a flat dish, fuse it on a water bath, and spread it uniformly on one side of paper.

Preserve it well-closed.

CHININUM AETHYLCARBONICUM.

Ethyl Quinine Carbonate.

$C_{23}H_{28}N_2O_4 = 396,36$

Colorless, soft needles, almost odorless and having a slightly bitter taste; sparingly soluble in water, but soluble in alcohol, ether, and in chloroform. Melting point: about 95°.

Dissolve 0,1 g of Ethyl Quinine Carbonate in chlorine water; the solution acquires a green color on the addition of an excess of ammonia water.

It dissolves readily in water, mixed with a small quantity of diluted sulphuric acid, and the solution exhibits a bluish-green fluorescence.

Dissolve 0,1 g of the salt by heating in 1 ccm of sulphuric acid; the solution, on the addition of 1 drop of potassium bichromate solution, produces a green solution and evolves the odor of acetaldehyde.

An aqueous solution (1:20) of the salt, previously acidified with nitric acid, should not be rendered turbid by barium nitrate solution, or by silver nitrate solution.

On incineration, it should leave not more than 0,1 per cent. of solid residue.

CHININUM FERRO-CITRICUM.

Iron and Quinine Citrate.

Iron Powder	30 *pts.*
Citric Acid	60 *pts.*
Citric Acid, *in powder*	5 *pts.*
Quinine Sulphate	13 *pts.*
Distilled Water	5000 *pts.*

Transfer iron powder into a porcelain dish, add the solution of citric acid in distilled water, heat the mixture with frequent stirring for 48 hours at 40–50°, and filter it. Evaporate the filtrate at the same temperature until it becomes syrupy, after cooling add moistened quinine and citric acid, in powder, spread the resulting solution in thin layer, and dry it at 40–50°. To prepare moistened quinine, dissolve quinine sulphate in water, to which a little diluted sulphuric acid has been previously added, then add an excess of ammonia water, and thoroughly wash the resulting precipitate with water.

Lustrous, transparent, thin, reddish-brown leaflets, having a bitter, ferruginous taste; slowly soluble in water, and sparingly soluble in alcohol.

An aqueous solution of Iron and Quinine Citrate, when acidified with hydrochloric acid, acquires a blue color with potassium ferrocyanide solution; the same solution produces, on the addition of ammonia water, a white precipitate, which is completely soluble in ether.

The salt contains 9–10 per cent. of pure quinine ($C_{20}H_{24}N_2O_2$ = 324,31) and 21 per cent. of pure iron (Fe = 55,84).

On heating, the salt at first chars and then burns leaving a residue, which should have no alkaline reaction.

Boil an aqueous solution (1 : 5) of the salt with an excess of potassium hydroxide solution, until the iron is completely precipitated; no ammonia should be evolved. The filtrate, when acidified with acetic acid and allowed to stand for a long time, should produce no crystalline precipitate.

An aqueous solution (1 : 20) of the salt should produce no more than a slight turbidity with barium nitrate solution.

Dissolve 1 g of the salt, dried to constant weight at 100°, in 5 ccm of water, make the solution strongly alkaline by sodium hydroxide solution, shake the mixture successively 4 times with 10 ccm each of ether, collect the ethereal solution, and evaporate; the residue, dried at 100°, should weigh at least 0,09 g. Dissolve the quinine, prepared by the above method, in alcohol, completely neutralize it with diluted sulphuric acid, evaporate, and let it crystallize; the crystals here obtained should conform to the tests given under *Chininum sufluricum.*

Gently ignite 1 g of the salt, moisten the residue with nitric acid, evaporate it by gentle heat, and ignite it again; the residue of ferric oxide should weigh at least 0,3 g.

Preserve it protected from light.

O CHININUM HYDROCHLORICUM.

Quinine Hydrochloride.

$C_{20}H_{24}N_2O_2.HCl + 2H_2O = 396,81$

White needles, having an exceedingly bitter taste; soluble in 3 parts of alcohol, and in 34 parts of water.

An aqueous solution of Quinine Hydrochloride is colorless and neutral, and exhibits no fluorescence.

Add 1 ccm of chlorine water to 5 ccm of an aqueous solution (1 : 200) of the salt, and then add an excess of ammonia water; a green color is produced. The same aqueous solution (1 : 200) exhibits a blue fluorescence with diluted sulphuric acid.

An aqueous solution of the salt, acidified with nitric acid, produces a white precipitate on the addition of silver nitrate solution.

An aqueous solution (1 : 50) of the salt should be rendered not more than slightly turbid by the addition of barium nitrate solution, and should not become turbid with diluted sulphuric acid.

Mix 0,05 g of the salt with 10 drops of sulphuric acid and 1 drop of nitric acid; no reddish-yellow color should be produced.

When boiled with milk of lime, the salt should evolve no ammonia.

Dissolve 2 g of the salt in 20 ccm of water by warming at 60°, thoroughly mix 1 g of freshly powdered, uneffloresced sodium sulphate with the solution, and, after cooling, allow the mixture to stand for 1 hour at 15°, stirring occasionally. Pack the mixture in a dry cloth of about 100 qcm in area, press, and filter the resulting liquid through a filter paper of 7 cm in diameter. Transfer 5 ccm of the filtrate at 15° to a dry test tube, and add ammonia water at 15°, shaking gently; not more than 5 ccm of ammonia water should be required to completely dissolve the precipitate produced at first.

When dried at 100°, the salt should lose not more than 9,1 per cent. of its weight.

On incineration, the salt should leave not more than 0,1 per cent. of solid residue.

CHININUM SULFURICUM.

Quinine Sulphate.

$(C_{20}H_{24}N_2O_2)_2.H_2SO_4 + 8H_2O = 890,83$

Fine, white, efflorescent needles, having an exceedingly bitter taste; soluble in about 800 parts of water, 25 parts of boiling water, and in 6 parts of boiling alcohol.

An aqueous solution of Quinine Sulphate is colorless and neutral, and exhibits no fluorescence; but, when acidified with 1 drop of diluted sulphuric acid, it develops a blue fluorescence.

Add 1 ccm of chlorine water to 5 ccm of a cold, saturated, aqueous solution of the salt, and then add an excess of ammonia water; the liquid acquires a green color. The same solution, when acidified with nitric acid, yields a white precipitate with barium nitrate solution.

A solution of 0,05 g of the salt in 1 ccm of sulphuric acid should be not more than light yellowish, and a solution of the same in 1 ccm of nitric acid should be colorless.

On boiling the salt with milk of lime, no ammonia should be evolved.

A cold, saturated, aqueous solution of the salt, acidified with diluted nitric acid, should not be affected by silver nitrate solution.

Add to 1 g of the salt 7 ccm of a mixture of 2 volumes of chloroform and 1 volume of absolute alcohol, and warm the mixture for a while at 40–50°; it should dissolve completely, the solution remaining almost clear on cooling.

Mix 2 g of the salt, completely effloresced at 40–50°, with 20 ccm of water in a test tube, warm for 30 minutes at 60–65° with frequent agitation. Then immerse the test tube in water at 15°, and allow the mixture to cool for 2 hours with occasional shaking. Pack the content in a dry cloth of about 100 qcm in area, press, and filter the resulting solution through a filter paper of 7 cm in diameter. Transfer 5 ccm of the filtrate at 15° to a dry test tube, mix it gently with ammonia water at 15°, and shake lightly; not more than 5 ccm of ammonia water should be required to completely dissolve the precipitate produced at first.

When dried at 100,° the salt should lose not more than 16,2 per cent. of its weight.

On incineration, the salt should leave not more than 0,1 per cent. of solid residue.

Preserve it in well-stoppered bottles.

CHININUM TANNICUM.

Quinine Tannate.

Quinine Sulphate	2 *pts.*
Tannic Acid	5 *pts.*
Ammonia Water	1 *pt.*
Distilled Water	131 *pts.*
Diluted Sulphuric Acid	*a sufficient quantity.*

Dissolve quinine sulphate in a mixture of 60 parts of distilled water and diluted sulphuric acid, add tannic acid solution, obtained by dissolving 4 parts of the acid in 25 parts of distilled water, in small portions, and then a solution of 1 part of the same acid in 16 parts of distilled water. Pour ammonia water, with stirring, to the mixture, collect the precipitate after setting aside for 12 hours, wash it with 20 parts of distilled water, and then press. Heat the precipitate with 10 parts of distilled water until a yellowish-brown, translucent, resinous substance is produced, then decant the liquid, and, after drying at first at 30–40°, then at 100°, protected from light, reduce it to a fine powder.

A yellowish-white, amorphous powder, odorless and having a very slightly bitter and astringent taste; sparingly soluble in water, somewhat easily soluble in alcohol.

Quinine Tannate contains 30–32 per cent. of pure quinine ($C_{20}H_{24}N_2O_2=324,31$).

An aqueous or alcoholic solution of the salt acquires a bluish-black color on the addition of ferric chloride solution.

Shake 1 g of the salt with 50 ccm of water and 1 ccm of nitric acid, and filter the mixture; the filtrate should not be affected by hydrogen sulphide water, or by silver nitrate solution, nor immediately be rendered any more than slightly turbid by barium nitrate solution.

Mix 1 g of the salt, dried to constant weight at 100°, in a separator with 5 ccm of water, make the solution strongly alkaline with sodium hydroxide solution, and vigorously shake the mixture with 15 ccm of ether; transfer the clear ethereal solution into a vessel, previously weighed, and repeat the extraction with 2 successive portions of 15 ccm each of ether. Upon the evaporation of the combined ethereal solution and drying the residue at 100°, the weight of the quinine should be at least 0,3 g.

Dissolve the quinine, prepared by the above method from a somewhat larger quantity of the salt, in alcohol, exactly neutralize it with diluted sulphuric acid, and evaporate the solution; the resulting substance should conform to the properties under *Chininum sulfuricum.*

When dried at 100°, the salt should lose not more than 10 per cent. of its weight.

On incineration, the salt should leave not more than 0,2 per cent. of solid residue.

Preserve it protected from light.

O CHLORALUM HYDRATUM.

Chloral Hydrate.

$C_2H_3Cl_3O_2 = 165,41$

Colorless, transparent, dry crystals, having a penetrating odor and a caustic, somewhat bitter taste; easily soluble in water, alcohol, and in ether, slightly soluble in fixed oils, and in carbon disulphide, and slowly soluble in 5 parts of chloroform. Melting point: 53–56°.

When heated with sodium hydroxide solution, it becomes at first turbid, and then clear with the separation of chloroform.

A solution of 1 g of Chloral Hydrate in 10 ccm of alcohol should hardly redden a blue litmus paper, and should not at once be affected by silver nitrate solution.

Transfer 0,5 g of Chloral Hydrate together with 5 ccm of sulphuric acid into a glass-stoppered tube of an internal diameter of 3 cm, and allow it to stand, shaking frequently; the mixture should acquire no color within 1 hour.

On warming a solution of 1 g of Chloral Hydrate in 5 ccm of water, no odor of benzene should be evolved.

Pour 1 ccm of crude nitric acid upon 1 g of Chloral Hydrate in a porcelain dish; no yellow color should devolop, even on warming for 3–4 minutes on a water bath, and no yellowish vapor should be evolved on warming for 10 minutes more.

On incineration, it should leave not more than 0,1 per cent. of solid residue.

Preserve it with care, in well-stoppered bottles.

Maximum dose at a time: 2 g.
Maximum dose for a day: 6 g.

CHLOROFORMIUM.

Chloroform.

$CHCl_3 = 119,39$

A colorless, clear, volatile liquid, of a characteristic odor and a slightly sweet taste; very slightly soluble in water, and miscible in all proportions with alcohol, ether, and with fixed or volatile oils. Specific gravity: 1,485–1,495. Boiling point: 60–62°.

On heating an alcoholic solution of Chloroform with potassium hydroxide solution and a little aniline, a disagreeable, pungent odor is evolved.

Agitate Chloroform with half its volume of water ; the aqueous layer should not redden a blue litmus paper, nor produce any more than an opalescence, when carefully added to silver nitrate solution, previously diluted with an equal volume of water.

Chloroform should not be colored on shaking with zinc iodide and starch solution, nor should the latter solution be colored blue.

When poured on a filter paper and spontaneously volatilized, Chloroform should leave no odor. 10 ccm of Chloroform should leave no residue, when evaporated on a water bath.

Frequently shake 20 ccm of Chloroform with 15 ccm of sulphuric acid in a glass-stoppered cylinder of an internal diameter of 3 cm; the acid should remain colorless within 1 hour.

Preserve it with care, in well-stoppered bottles, protected from light.

O CHLOROFORMIUM PRO NARCOSI.

Narcotic Chloroform.

$CHCl_3 = 119,39$

A colorless, clear, volatile liquid, of a characteristic odor and a slightly sweet taste; very slightly soluble in water, and miscible in all proportions with alcohol, ether, and with fixed or volatile oils. Specific gravity: 1,485–1,489. Boiling point: 60–62°.

Heat an alcoholic solution of Narcotic Chloroform with potassium hydroxide solution and a little aniline; a disagreeable, pungent odor is evolved.

Agitate Narcotic Chloroform with half its volume of water; the aqueous layer should not redden a blue litmus paper, nor produce any change when carefully added to silver nitrate solution, previously diluted with an equal volume of water.

Narcotic Chloroform should not be colored on shaking with zinc iodide and starch solution, nor should the latter be colored blue.

When poured on a filter paper and spontaneously volatilized, it should leave no odor. 10 ccm of Narcotic Chloroform should leave no residue, when evaporated on a water bath.

Frequently shake 20 ccm of Narcotic Chloroform with 15 ccm of sulphuric acid and 4 drops of formaline in a glass-stoppered cylinder of an internal diameter of 3 cm; the acid should remain colorless within 30 minutes.

Pour 30 ccm of Narcotic Chloroform upon about 5 g of potassium hydroxide, freshly broken into fragments in size of a pea, and set aside tightly closed, with vigorous shaking, and protected from light; the potassium hydroxide should not be colored yellowish within 6 hours.

Preserve it with care, in small, amber-colored, partially filled, well-stoppered bottles, in a cool dark place.

CHRYSAROBINUM. *Araroba depurata.*
Chrysarobin. *Purified Goa Powder.*

A substance found deposited in the cavities of the stem of Andira Araroba *Aguiar.*, in purified form.

A yellow, light, crystalline powder.

When boiled with 2000 times its weight of water, Chrysarobin dissolves in it, leaving a small quantity of residue; the filtrate is tasteless, slightly brownish-red in color, neutral to litmus papers, and is not changed in color by ferric chloride solution.

When shaken with ammonia water, and left for 24 hours, it gradually acquires a carmine-red color. Add 1 drop of fuming nitric acid to 0,001 g of Chrysarobin in a watch glass; a red solution is obtained, which turns violet on mixing with ammonia water.

When sprinkled on sulphuric acid, it should produce a reddish-yellow liquid. 1 part of Chrysarobin, when dissolved in 300 parts of boiling alcohol, warm chloroform, or in carbon disulphide, should leave not more than a slight insoluble residue.

When heated, it should melt and carbonize evolving yellow vapors, and, on further incineration, it should leave not more than 0,25 per cent. of solid residue.

O COCAINUM HYDROCHLORICUM.

Cocaine Hydrochloride.

$C_{17}H_{21}NO_4.HCl = 339,73$

Colorless leaflets or prismatic crystals, or a white, crystalline powder, almost inodorous; soluble in water, and in alcohol, showing a neutral or a nearly neutral reaction. Its solution is bitter, and produces insensitiveness on the tongue.

An aqueous solution of the salt, acidified with hydrochloric acid, produces a white precipitate with mercuric chloride solution, a brown precipitate with iodine solution, and, with potassium hydroxide solution, a white precipitate, easily soluble in alcohol, and in ether. The same solution, acidified with nitric acid, yields a white precipitate with silver nitrate solution.

Heat 0,1 g of the salt with 1 ccm of sulphuric acid for 5 minutes at about 100°, and carefully add 2 ccm of water to the cold solution; an odor of methyl benzoate is evolved, and, on cooling, abundant crystals deposit, which redissolve in 2 ccm of alcohol.

Dissolve 0,05 g of the salt in 5 ccm of water, and add 5 drops of chromic acid solution; every drop produces a yellow precipitate, which, redissolves on shaking and reappears on the addition of 0,8 ccm of hydrochloric acid.

Dissolve 0,1 g of the salt in 1 ccm of sulphuric or nitric acid; no coloration should take place. A solution of 0,1 g of the salt in 5 ccm of water should yield, on adding at first 3 drops of diluted sulphuric acid and then 5 drops of potassium permanganate solution, a violet color, which does not fade within 30 minutes.

Dissolve 0,1 g of the salt in 100 ccm of water, add, without shaking, 4 drops of ammonia water, and set aside ; no turbidity should be produced within 1 hour.

An aqueous solution (1 : 20) of the salt should produce no more than an opalescence with barium nitrate solution ; the same solution should produce, with sodium hydroxide solution, a white, crystalline precipitate, but should evolve no ammonia.

When dried at 100°, the salt should lose not more than 0,5 per cent. of its weight.

On incineration, the salt should leave not more than 0,1 per cent. of solid residue.

Preserve it with care, in well-stoppered bottles.

Maximum dose at a time : 0,05 g.
Maximum dose for a day : 0,15 g.

COCCIONELLA.

Cochineal.

The dried female of the insect, Coccus Cacti *L.*

Granules, 5 mm in length, somewhat ovate or oblong in outline, transversely wrinkled, convex above, flat or concave beneath, violescent-black or violescent-gray, usually with a silvery coating, easily pulverizable when ground, yielding a dark red to dark brown powder.

Cochineal should contain no foreign matter.

On incineration, it should leave not more than 6 per cent. of solid residue.

O CODEÏNUM PHOSPHORICUM.

Codeine Phosphate.

$C_{18}H_{21}NO_3.H_3PO_4+2H_2O=433,36$

Fine, white, acicular crystals, or a white, crystalline powder, having a bitter taste; soluble in about 3,5 parts of water, showing a slightly acid reaction, but difficultly soluble in alcohol.

0,1 g of the salt dissolves almost colorlessly in 10 ccm of sulphuric acid, and the solution is colored at first blue and then violet by warming with 1–2 drops of ferric chloride solution.

An aqueous solution (1 : 20) of the salt yields a yellow precipitate with silver nitrate solution, and a white precipitate with potassium hydroxide solution.

Mix 1 ccm of its aqueous solution (1 : 100) with a solution, obtained by dissolving a piece of potassium ferricyanide in 10 ccm of water and adding 1 drop of ferric chloride solution; no blue color should at once be produced.

An aqueous solution (1 : 20) of the salt, acidified with nitric acid, should not be affected by silver nitrate solution, and should not at once become turbid with barium nitrate solution.

When dried at 100°, the salt should lose not more than 8,5 per cent. of its weight.

Preserve it with care.

Maximum dose at a time: 0,1 g.
Maximum dose for a day: 0,3 g.

COGNAC.

Cognac.

A clear, yellow, alcoholic drink of superior quality, prepared by the distillation of wine; odor and taste agreeable.

100 ccm of Cognac contains 35–39 g of pure ethyl alcohol ($C_2H_6O =$ 46,06).

Distil 100 ccm of Cognac slowly, at the rate of 10 drops or less per 1 minute, transfer 0,1 ccm from 10 ccm of the first distillate into a test tube, then add 5 ccm of potassium permanganate solution (1 : 100) and 0,2 ccm of sulphuric acid, and allow the mixture to stand for 2–3 minutes. Add 1 ccm of oxalic acid solution (1 : 12), then, when the mixture has become yellow, shake with 1 ccm of sulphuric acid to complete decolorization, and add 5 ccm of fuchsin sulphurous acid solution. Gently shake the stoppered test tube, and set it aside; no color, or, if any, not more than a faint blue color should develop within 1 hour.

Shake the whole remainder of the first distillate with 250 ccm of potassium permanganate solution (1 : 100) and 10 ccm of sulphuric acid, allow the mixture to stand for 2–3 minutes, then discharge its color with oxalic acid solution (1 : 12), and distil. During the distillation occasionally take about 5 ccm of the distillate, add about 0,03 g of phenylhydrazine hydrochloride, 4 drops of sodium nitroprusside solution (1 : 40) and 1 ccm of sodium hydroxide solution (1 : 10), and repeat the precedure until the mixture is no more colored dark red. Then change the receiver, collect the distillates, mix with 3 g of calcium carbonate, and distil once more.

Add an excess of ammonia water to the distillate, and evaporate the mixture at the temperature not exceeding 80°. Take 2 drops of the concentrated liquid on an object glass, add 1 drop of mercuric chloride solution, and inspect it under the microscope; no radiated crystals should be found.

COLLA PISCIUM. *Ichthyocolla.*

Isinglass.

A substance prepared from the air-bladder of Acipenser **Huso** ***L.***

A whitish, tough, semi-transparent, horny membrane, or colorless, translucent, iridescent scales, or slender slices; without odor or taste.

It swells up, when soaked in water, and dissolves almost completely in boiling water, and in boiling diluted alcohol.

When 1 part of Isinglass is dissolved in 30 parts of boiling water, an almost colorless, transparent jelly should be obtained on cooling.

On incineration, it should leave not more than 1,2 per cent. of solid residue.

COLLODIUM.

Collodion.

Crude Nitric Acid	80 *pts.*
Crude Sulphuric Acid	200 *pts.*
Purified Cotton	11 *pts.*

Carefully and gradually add crude sulphuric acid to crude nitric acid, and, when the mixture has been cooled to 20°, immerse the cotton in it. After setting aside at 15–20° for 24 hours, transfer the cotton into a funnel, allow the excess of the acid to drain off for 24 hours, then wash it with water until the acid is entirely removed, press, and dry it at 25°.

Collodion Cotton	2 *pts.*
Alcohol	7 *pts.*
Ether	42 *pts.*

Moisten the dried collodion cotton, contained in a flask, with alcohol, shake it frequently with ether, set it aside, and decant the supernatant liquid.

A colorless or slightly yellow, syrupy liquid, of neutral reaction, and leaving a colorless, tough film when exposed to the air in a thin layer and allowed to evaporate.

On evaporation, it should leave about 3,5 per cent. of residue.

Preserve it in well-stoppered bottles, in a cool place.

COLLODIUM CANTHARIDATUM.

Cantharidal Collodion.

Cantharides, *in medium powder*	1 *pt.*
Ether	*a suitable quantity.*
Collodion	*a suitable quantity.*

Exhaust cantharides with ether in the cold, filter, and evaporate the clear filtrate to a syrupy consistency by gentle heat. Add collodion to the residue to make it weigh 1 part.

A clear, syrupy, olive-green liquid, having a slightly acid reaction, and leaving a green, tough film when ether and alcohol are volatilized.

Preserve it with care, in well-stoppered bottles, in a cool place.

COLLODIUM ELASTICUM.

Elastic Collodion.

Collodion	97 *pts.*
Castor Oil	3 *pts.*

Mix them.

An almost colorless or slightly yellow, syrupy liquid.

Preserve it in well-stoppered bottles, in a cool place.

COLLODIUM JODOFORMIATUM.

Iodoform Collodion.

Iodoform	1 *pt.*
Collodion	9 *pts.*

Dissolve iodoform in collodion.

A syrupy, brownish liquid.

It should not have a dark brown color.

Preserve it in well-stoppered bottles, protected from light, in a cool place.

COLOPHONIUM.

Rosin. *Colophony.*

The resin prepared by removing volatile oil from the exudation of various species of Pinus.

Yellowish or light brown, glassy, translucent, brittle masses, covered with a white dust; fracture shallow conchoidal; melting, when heated on a water bath, to a clear viscous liquid; evolving, when strongly heated, heavy, aromatic, white vapors. Acid value: 151,5–179,6.

It is soluble in 1 part of absolute alcohol, and in 2 parts of glacial acetic acid, and clearly soluble in 8 parts of diluted potassium hydroxide solution (1 : 40).

Dissolve 1 g of Rosin, at ordinary temperature, in 25 ccm of half-normal alcoholic potassium hydroxide volumetric solution, and add 10 drops of phenolphthalein solution; on titration, 18,6–19,6 ccm of half-normal hydrochloric acid volumetric solution should be required for decolorization.

CORTEX AURANTII FRUCTUS.

Bitter Orange Peel.

The dried peel of the ripe fruits of Citrus Aurantium *L. subsp.* amara *Engl.*, the white spongy tissue being removed.

Externally of a brownish color, and roughly pitted.

Odor aromatic; taste aromatic and highly bitter.

CORTEX CASCARILLAE.

Cascarilla Bark.

The dried bark of the trunk and branches of Croton Eluteria *Benn.*

In quills or curved pieces, 0,5–2 mm thick; the outer surface covered, here and there, with a whitish corky layer, which is provided with transverse, slit-like lenticels, and is irregularly fissured, assuming a brownish color at the spots where the corky layer has dropped off; the inner surface grayish-brown; fractures smooth and horny.

Under the microscope, sections of the bark show cork cells, thick-walled on the external side and thin-walled on the internal side, and containing minute sandy crystals of oxalate; in the outer bark, bundles of bast fibres, consisting of a few sclerenchymatous cells; in the inner bark, sclerenchymatous fibres, generally singly scattered, and secretory cells with brown contents; medullary rays 1–2 cells wide, which sometimes contain rosette aggregates of oxalate; parenchymatous cells of the bark containing minute starch grains; stone cells absent.

Odor aromatic; taste aromatic and bitter.

The bark should contain no pieces of wood.

O CORTEX CHINAE.

Cinchona Bark.

The dried bark of the trunk and branches of various species of the genus Cinchona.

In quills, curved pieces, or plates; brittle; externally grayish-brown, marked with rough longitudinal ridges and short transverse fissures; internally fibrous and brownish-red.

Under the microscope, bast fibres, characteristic of the Cinchona Bark, are visible.

The powdered bark produces a carmine-colored tar on heating in a test tube.

Add to 2,5 g of the bark, in fine powder and dried at 100°, 20 ccm of normal hydrochloric acid volumetric solution, warm the mixture on a water bath for 10 minutes, and after cooling thoroughly shake it with 20 ccm of chloroform and 80 ccm of ether. Then add 7 ccm of sodium hydroxide solution, and again shake it vigorously for 10 minutes.

Add to the mixture 3 g of tragacanth powder, let the powder collect together by vigorous shaking, and set it aside for 5 minutes. Then quickly filter the chloroform-ether solution through purified cotton, add to 80 ccm of the filtrate 10 ccm of alcohol, and remove the chloroform by distillation with a fragment of glass.

Completely dissolve the residue in 20 ccm of alcohol by gentle heat, add 10 ccm of water and 3 drops of haematoxylin solution, and add tenth-normal hydrochloric acid volumetric solution, shaking gently, until a reddish-brown mixture results. Then add 50 ccm of water, and continue the titration; in order to color the solution yellow, at least 4 ccm of tenth-normal hydrochloric acid volumetric solution should be required.

Add to 5 ccm of the neutralized solution 1 ccm of chlorine water, and then ammonia water; it should acquire a beautiful green color.

CORTEX CINNAMOMI.

Cassia Bark.

The dried bark of the trunk and branches of Cinnamomum Cassia *Bl.*, prepared by partially removing the corky layer.

1–3 mm thick; external surface grayish-brown or brown.

Under the microscope, cross sections of the bark show, in the primary bark, parenchyma containing plenty of starch grains; at the internal boundary of the primary bark, a sclerenchymatous ring layer of stone cells, interrupted at several places and occasionally accompany-ing the groups of bast fibres at the outside; the walls of stone cells unevenly thickened, and chiefly thick in the inner walls; in the secondary bark, isolated sclerenchymatous fibres, about 0,7 mm in length and 0,015–0,03 mm in diameter, and besides mucilage cells and oil cells; the medullary rays, generally 2 cells in width, containing starch grains and fine rhombic crystals of oxalate.

Odor characteristic, pungent; taste characteristic, pungent and slightly slimy.

CORTEX CINNAMOMI LOUREIRII.

Nikkei Bark. *Japanese Cinnamon Bark.*

The dried bark of the trunk and roots of Cinnamomum **Loureirii** *Nees.*

0,2–0,5 mm thick; external surface grayish-brown or reddish-brown; internal surface yellowish-brown.

Under the microscope, cross sections of the bark show discontinuous ring layer of stone cells at the internal boundary of the primary bark, with no bundle of sclerenchymatous fibres at its outside; the walls of each stone cells being unevenly thickened, thin in the outer walls and thick in other walls; in the secondary bark, singly scattered sclerenchymatous fibres, mucilage cells and oil cells; the medullary rays mostly of 2 cells in width, which contain starch grains and many fine, square or oblong crystals of oxalate.

The bark has an aromatic, pungent and slightly astringent taste.

CORTEX CITRI FRUCTUS.

Lemon Peel.

The outer rind of the fresh, ripe fruits of Citrus Medica *L.* and Citrus Medica *L. subsp.* Limonum *Hook. fil.*, cut in spiral ribbons and dried.

Externally brownish-yellow ; pitted with numerous oil reservoirs, embedded in the tissue ; internally whitish.

Odor aromatic ; taste aromatic and somewhat bitter.

CORTEX CONDURANGO.

Condurango Bark.

The dried bark of the stem of Marsdenia Cundurango *Rchb. fil.*

In quills or curved pieces, slightly curved in general ; 2–7 mm in thickness ; externally brownish-gray and internally light grayish-brown ; the fractures being long fibrous on the outer side and granular on the inner side.

Under the microscope, cross-sections of the bark show corky layers consisting of numerous thin-walled cells ; in the primary bark, conspicuous bundles of bast fibres ; in the secondary bark, numerous groups of stone cells entangled with lactiferous vessels ; all parenchymatous cells containing starch grains and mostly rosette aggregates of oxalate ; the medullary rays generally of 1 cell in width, which often contains rosette aggregates of oxalate.

The bark has a faint, characteristic odor, and a bitter and somewhat acrid taste.

The clear liquid, obtained by macerating 1 part of the bark with 4 parts of water and then filtering, is rendered conspicuously turbid by heating, but becomes clear again on cooling.

CORTEX FRANGULAE.

Frangula Bark.

The bark of the trunk and branches of Rhamnus Frangula *L.*, preserved at least 1 year after the collection.

Not more than 1,5 mm in thickness ; externally grayish-brown, with numerous, whitish lenticels ; showing a red color, when the outer bark is scratched with a knife; internally reddish-yellow to brownish.

When immersed in lime water, the inner surface of the bark assumes a red color.

Under the microscope, its sections show corky layer containing red substance; in the secondary bark, medullary rays 1–3 cells in width and 10–25 cells in height; in the cortical strands, isolated bundles of long, colorless, sclerenchymatous fibres, which are accompanied by longitudinal rows of crystal fibres, the other parenchymatous tissue containing rosette aggregates of oxalate; the bundles of sclerenchymatous fibres in tangential rows at the internal boundary of the bark; stone cells absent.

The infusion, obtained by boiling 1 part of the bark, in coarse powder, with 100 parts of water, has a yellowish-red or brownish color, and, after cooling, acquires a deep brown color with ferric chloride solution.

It has a slimy, somewhat bitter and sweet taste.

CORTEX GRANATI.

Pomegranate Bark.

The dried bark stripped off from the trunk, branches and roots of Punica Granatum *L.*

In quills or transversely curved pieces, 1–3 mm in thickness; externally greenish-yellow or grayish-brown; fracture smooth, yellowish and frequently somewhat brown or gray at its outer layer; the outer bark consisting of corky layers, the inner walls of the cork cells being conspicuously thickened, distinctly stratified and pitted; the secondary bark with medullary rays, usually 1 cell and very rarely 2 cells in width; the cells of the parenchyma between medullary rays, each of which containing 1 rosette aggregate of oxalate and showing quadratic form in cross section, arranged in regular tangential rows; the latter being alternately placed with another tangential rows of parenchymatous cells which contain sieve tubes; particularly at the outer portion of the secondary bark, sclerenchymatous cells of 0,02–0,2 mm in diameter.

When 1 part of fine pieces of Pomegranate Bark is left for 1 hour with 100 parts of slightly acidified water, a yellow extract is obtained, which acquires a blackish-blue color with 2–3 drops of ferric chloride solution; the same extract, when mixed with 5 times its volume of lime water, is rendered turbid and colored yellowish-red, and is finally decolorized, gradually depositing an orange-red, flocculent precipitate.

The powdered bark should contain no other ingredients, except round, single, rarely compound starch grains with a diameter of 0,0025–0,008 mm, characteristic cork cells, sclerenchymatous cells, cells containing single crystals or rosette aggregates of oxalate, parenchymatous cells and sieve tubes.

Add to 5 g of the bark, in medium powder and dried at 100°, 40 ccm of half-normal hydrochloric acid volumetric solution, warm the mixture on a water bath for 10 minutes, shake it well, after cooling, with 20 ccm of chloroform and 80 ccm of ether, then add 8 ccm of sodium hydroxide solution, and shake again vigorously for 10 minutes. Add to the mixture 3 g of tragacanth powder, let the powder collect together by violent shaking, set it aside quietly for 5 minutes, and quickly filter the clear chloroform-ether solution through purified cotton.

Shake 80 ccm of the filtrate with 30 ccm of hundredth-normal hydrochloric acid volumetric solution in a separator, allow it to stand quietly, then separate the lower, clear, acid layer, and filter it into a flask, of 200 ccm in capacity, through a small filter paper, previously moistened with water. Shake the chloroform-ether solution with 3 successive portions of 10 ccm each of water, set aside quietly, filter the aqueous solution through the same filter paper, and finally wash it with 20 ccm of water. Then pour ether into the united aqueous solution until it forms a layer of about 1 cm in depth in the flask, and add 5 drops of iodeosin solution ; on titration, with strong shaking, not more than 18,8 ccm of hundredth-normal potassium hydroxide volumetric solution should be required to produce a pink tint in the lower aqueous layer.

CORTEX QUILLAIAE.

Quillaia Bark.

The dried bark of the trunk and branches of Quillaja Saponaria *Molina.*, deprived of the brown periderm.

In chips or flattened pieces; yellowish white, occasionally with small brown dots; attaining 1 cm in thickness; fracture sharp; when broken, scattering about a sternutatory powder.

Under the microscope, the sections show chiefly secondary bark; the tangentially prolonged bundles of sclerenchymatous fibres entangling with the medullary rays of about 5 cells in width; parenchyma containing large numbers of characteristic, prismatic crystals of oxalate, about 0,2 mm in length, prolonged in the direction of the main axis.

It has a slimy and acrid taste.

The infusion, obtained by boiling Quillaia Bark with water, conspicuously foams on shaking.

CORTEX RHAMNI PURSHIANAE. *Cascara sagrada.*

Cascara Sagrada.

The bark of the trunk and branches of Rhamnus Purshiana *D. C.*, preserved at least 1 year after the collection.

2–5 mm thick; externally brown, marked with transversely elongated lenticels, and often covered with grayish-white lichens; inner surface from yellowish to brownish, turning dark red when moistened with lime water; fracture somewhat fibrous.

Under the microscope, its sections show groups of stone cells, chiefly scattered in the primary bark and occasionally in the secondary bark; medullary rays, 1–5 cells in width, running through the secondary bark; many bundles of fibres, tangentially arranged in the cortical strands and accompanied by crystal fibres running longitudinally.

The clear infusion, obtained by macerating 1 part of Cascara Sagrada, in coarse power, with 100 parts of cold water, produces a yellowish-red color with 2–3 drops of ammonia water.

It tastes bitter.

CRESOLUM CRUDUM.

Crude Cresol.

A yellowish to yellowish-brown, clear liquid, showing a neutral or slightly acid reaction, heavier than water; having an empyreumatic odor; not completely soluble in water, but easily soluble in alcohol, and in ether.

Distil 50 ccm of Crude Cresol; about 46 ccm of the distillate should be obtained at 180–200°.

Shake 10 ccm of Crude Cresol in a glass-stoppered, graduated cylinder, of 200 ccm in capacity, together with 50 ccm each of sodium hydroxide solution and water; not more than a minute, flocculent substance should be deposited on standing for 30 minutes. Add 30 ccm of hydrochloric acid and 10 g of sodium chloride to the above solution, shake the mixture, and set it aside; 8,5–9 ccm of an oily layer of cresol should separate out. Shake 5 ccm of the cresol, here separated, with 300 ccm of water, and add 0,5 ccm of ferric chloride solution; a bluish-violet color should be produced.

CRETA PRAEPARATA.

Prepared Chalk.

A powdered chalk, freed from its impurities by elutriation, and dried.

A white, very fine, amorphous powder, or easily pulverizable masses; odorless and tasteless; insoluble in water, or in alcohol.

Prepared Chalk is almost completely dissolved with effervescence by acetic acid, and the solution yields a white precipitate with ammonium oxalate solution.

A diluted acetic acid solution (1 : 20) of Prepared Chalk should not be rendered turbid by calcium sulphate solution, or by barium chloride solution, and should acquire not more than a slightly blue color with potassium ferrocyanide solution.

Completely precipitate the same with ammonium oxalate solution, and filter; the filtrate should not be rendered conspicuously turbid by the addition of sodium phosphate solution and ammonia water.

CROCUS.

Saffron.

The dried stigmas of Crocus sativus *L.*

From dark orange-red to brownish-red in color; each stigma, when softened by immersing in water, 30–35 mm in length, spatulate, tubular, slitted on one side, and notched at the upper extremities; a delicate vascular bundle, ascending from the base, branches off dichotomously and terminates into about 20 vascular bundles in the upper, broad portion.

Add 1 drop of sulphuric acid to a powder of Saffron, and inspect under the microscope; each particle acquires a deep blue color, which, after a short time, turns purple and at last brownish-red.

When 1 part of Saffron is shaken with 100000 parts of water, the latter should acquire a distinct, purely yellow color.

Heat Saffron with potassium hydroxide solution ; it should not evolve vapor, which instantly turns a moistened, red litmus paper blue

It should not have a sweet taste, and, when pressed between folds of paper, it should leave no stain.

When dried at 100°, it should lose not more than 15 per cent. o weight, and the dried Saffron should be brittle and easily breakabl in pieces ; on incineration, no explosion should take place, and i should leave 3,5-6 per cent. of solid residue.

It should have a strong odor and an aromatic, bitter taste.

Preserve it well-closed, protected from light.

CUPRUM ALUMINATUM.

Copper Alum.

Copper Sulphate	10 *pts.*
Potassium Nitrate	10 *pts.*
Potassium Alum	10 *pts.*
Purified Camphor, *in powder*	1 *pt.*

Pulverize the salts, mix them, and heat the mixture in a porcelain dish on a sand bath until it melts. Then add purified camphor t the mixture, and mould it into small sticks.

A light greenish-blue, small stick, having the odor of camphor soluble in 16 parts of water, leaving a little residue.

Preserve it with care, in well-stoppered bottles.

○ CUPRUM SULFURICUM.

Copper Sulphate.

$CuSO_4 + 5H_2O = 249,71$

Blue, transparent crystals, slowly efflorescent in dry air ; solubl in 3,5 parts of water, and in 1 part of boiling water, showing an aci reaction, but almost insoluble in alcohol.

An aqueous solution of Copper Sulphate produces, with barium nitrate solution, a white precipitate, insoluble in diluted acids, and, with an excess of ammonia water, a clear, deep blue liquid.

Dissolve 0,5 g of the salt in 25 ccm of water, pass hydrogen sulphide through the solution, and filter off the black precipitate; the colorless filtrate should neither be colored by ammonia water, nor leave any weighable solid residue on evaporation and ignition.

Preserve it with care.

Maximum dose at a time: 1 g.

DECOCTA.

Decoctions.

Decoctions are the preparations, obtained by pouring cold water upon drugs, usually cut finely, heating on a water bath for 30 minutes with occasional agitation, and straining by expression while still warm.

When the quantities of the drugs are not otherwise directed in the prescription, use water in such a quantity that 10 parts of the expressed liquid are obtained from 1 part of the drugs.

In case of powerful drugs, the physicians should direct the quantities, and in case of slimy drugs, the pharmacists should decide the quantities.

O DIACETYLMORPHINUM HYDROCHLORICUM.

Diacetylmorphine Hydrochloride.

$$C_{21}H_{23}NO_5.HCl+H_2O=423,78$$

A white, crystalline powder; soluble in 3 parts of water, and in 11 parts of alcohol, showing a neutral or a slightly acid reaction, but insoluble in ether.

Boil 0,1 g of Diacetylmorphine Hydrochloride with 2 ccm of diluted sulphuric acid for 2–3 minutes, and then heat with 2–3 drops of alcohol; a pleasant odor of ethyl acetate is evolved. Almost neutralize the resulting solution with diluted sodium hydroxide solution (1 : 20), and evaporate it to dryness on a water bath; the residue acquires a red color with nitric acid, and a blue color with ferric chloride solution.

An aqueous solution of the salt produces, with silver nitrate solution, a white precipitate, insoluble in diluted nitric acid.

An aqueous solution (1 : 50) of the salt should be affected neither by barium nitrate solution, nor by diluted sulphuric acid, and should immediately produce no blue color with diluted ferric chloride solution. 5 ccm of the same solution should not be immediately colored blue by the addition of 5 drops of the solution, prepared by dissolving a small quantity of potassium ferricyanide in 5 ccm of water and adding 1 drop of ferric chloride solution. The same solution should evolve no odor of ammonia when heated with sodium hydroxide solution.

Dissolve 0,1 g of the salt in 2 ccm of water, and add ammonia water; a white precipitate is produced, which after washing and drying, should melt at 169–172°.

The solution of 0,1 g of the salt in 1 ccm of sulphuric acid should be almost colorless, and the solution in nitric acid should be yellow.

On incineration, the salt should leave not more than 0,1 per cent. of solid residue.

Preserve it with care, protected from light.

Maximum dose at a time: 0,005 g.
Maximum dose for a day: 0,015 g.

DIASTASA.

Diastase.

A yellowish-white powder, almost completely soluble in water, but almost insoluble in alcohol.

Pour 70 ccm of boiling distilled water, under frequent stirring, upon a mixture of 5 g of potato-starch, previously dried at 100° for 3 hours, and 30 ccm of water, heat the mixture in a water bath for 30 minutes, and cool the paste to 55°. Add 0,05 g of Diastase to the paste, and allow the mixture to stand at 55° for 1 hour with frequent stirring; 10 ccm of the resulting solution should decolorize 40 ccm of Fehling's solution.

The solution obtained by boiling 0,1 g of Diastase with 20 ccm of water, should, after cooling, produce no bluish-violet color with iodine solution.

When dried at 100°, it should lose not more than 4 per cent. of its weight.

Preserve it in well-stoppered bottles.

O DIMETHYLAMIDOANTIPYRINUM.

Dimethylamidoantipyrine.

$C_{13}H_{17}N_3O = 231,23$

Fine, white crystals, having a slightly bitter taste; soluble in 20 parts of water, showing a slightly alkaline reaction, and readily soluble in alcohol, and in ether. Melting point: 108°.

A small quantity of ferric chloride solution, added to a saturated, aqueous solution of Dimethylamidoantipyrine, produces a yellowish-brown color, and a large quantity of the reagent produces a bluish-violet color, afterwards changing to dark red. The same solution acquires a blue color with fuming nitric acid, and a beautiful bluish-violet color with iodine solution.

An aqueous solution (1 : 20) of Dimethylamidoantipyrine should not be affected by hydrogen sulphide water, and the same solution, strongly acidified with diluted sulphuric acid, should produce no turbidity with silver nitrate solution.

Dissolve 0,02 g of Dimethylamidoantipyrine in 5 ccm of water, and add 2 drops each of sulphuric acid and sodium nitrite solution; a bluish-violet color should be produced, which disappears on shaking.

On incineration, it should leave not more than 0,1 per cent. of solid residue.

Preserve it with care.

Maximum dose at a time: 0,3 g.
Maximum dose for a day: 1 g.

ELAEOSACCHARA.

Oil-Sugars.

Prescribed volatile oil	1 *pt.*
White Sugar, *in medium powder*	50 *pts.*

Mix them.

Prepare them freshly when wanted for use.

ELECTUARIA.

Electuaries.

Pasty or sludgy preparations for internal application, prepared from solid and fluid or semi-fluid medicines.

Solid medicines, to be used in the preparation of electuaries, should be reduced to a fine powder, and, after mixing thoroughly, fluid or semi-fluid medicines should be added to it.

Electuaries, which are to be preserved and contain no volatile ingredients, should be warmed, after mixing, on a water bath for 1 hour.

Electuaries should be homogeneous.

ELECTUARIUM SENNAE COMPOSITUM.

Lenitive Electuary.

Tamarind	10 *pts.*
Extract of Licorice	1 *pt.*
White Sugar	55 *pts.*
Distilled Water	75 *pts.*
Senna Leaves, *in fine powder*	7 *pts.*
Bitter Orange Peel, *in fine powder*	3 *pts.*
Fennel Fruit, *in fine powder*	1 *pt.*
Precipitated Sulphur	35 *pts.*
Potassium Bitartrate, *in fine powder*	10 *pts.*
Syrup of Bitter Orange Peel	35 *pts.*

Pour 40 parts of distilled water upon tamarind, warm, and agitate the mixture for about 2 hours until it becomes homogeneous; sift it into a previously weighed porcelain dish, then add extract of licorice, white sugar and 35 parts of distilled water, and warm the mixture on a water bath to completely dissolve the extract and sugar. Add to it an intimate mixture of senna leaves, bitter orange peel, fennel fruit, precipitated sulphur and potassium bitartrate, evaporate the resulting mixture by stirring on a water bath until it weighs 135 parts, then mix syrup of bitter orange peel, and finally add a suitable quantity of white sugar, which has been scorched to a dark brown color. Thoroughly mix the whole mass until a brownish, homogeneous, soft mass is obtained.

Preserve it in a cool dry place.

EMETINUM HYDROCHLORICUM.

Emetine Hydrochloride.

A white or almost white, crystalline powder, without odor and having a bitter taste; readily soluble in water, and in alcohol, showing a neutral reaction; on exposure to light, it gradually becomes colored.

The solution obtained by freshly dissolving 0,005 g of ammonium molybdate in 1 ccm of sulphuric acid, when added to Emetine Hydrochloride, produces a green color, changing to a deep green on the addition of hydrochloric acid.

Its aqueous solution, acidified with nitric acid, produces a white precipitate with silver nitrate solution.

It should dissolve almost colorlessly in sulphuric or nitric acid.

Add sodium carbonate solution to an aqueous solution (1 : 100) of the salt to alkaline reaction, shake the mixture with ether, and evaporate the ethereal solution; the residue, when washed with water and dried, should melt at about 68°.

When dried at 100°, it should lose not more than 15 per cent. of its weight.

On incineration, it should leave not more than 0,1 per cent. of solid residue.

Preserve it with special care, in well-stoppered bottles, protected from light.

Maximum dose at a time: 0,05 g.
Maximum dose for a day: 0,15 g.

EMPLASTRA.

Plasters.

Plasters are the preparations for external application, the ground mass of which is composed of fats, fixed oils, lead salts of the fatty acids, waxes, resins, wool fat, turpentine, glycerin, or the mixture of any of them.

Unless a special prescription is given, first melt or melt together the ground mass, then thoroughly mix the medicine to the partially cooled mass, and, when the mixture has become homogeneous, give a suitable shape to it.

Plasters should be solid at ordinary temperature, and should become soft and adhesive by gentle heat.

Unless a special prescription is given, plasters should be spread on muslin in the thickness of about 1 mm.

Preserve them in a cool dry place, packed in bamboo-sheaths or wax papers, and further kept in tin containers, when they contain volatile substances.

EMPLASTRUM ADHAESIVUM ANGLICUM.

Court Plaster.

Isinglass	10 *pts.*
Alcohol	40 *pts.*
Glycerin	1 *pt.*

Dissolve isinglass in boiling water to obtain 120 parts of the strained liquid, and spread 60 parts of the solution in successive layers on a stretched, white silk cloth, allowing each layer to dry; gradually add 60 parts of the remaining solution to a mixture of alcohol and glycerin, spread the resulting mixture on the same cloth in the same manner as before, finally coat the reserve side of the cloth with the tincture of benzoin, and dry well.

The plaster should be lustrous, and should adhere well to the skin when moistened.

Preserve it in a dry place.

EMPLASTRUM CANTHARIDUM.

Cantharides Plaster.

Cantharides, *in medium powder*	2 *pts.*
Olive Oil	1 *pt.*
Yellow Wax	4 *pts.*
Turpentine	1 *pt.*

Mix cantharides with olive oil, digest the mixture by heating on a water bath for 2 hours, then add yellow wax and turpentine, melt, and stir the mixture until it cools.

The plaster should be grayish-brown in color and somewhat soft.

EMPLASTRUM HYDRARGYRI.

Mercurial Plaster.

Mercury	2 *pts.*
Wool Fat	1 *pt.*
Yellow Wax	1 *pt.*
Lead Plaster	6 *pts.*

Intimately triturate mercury with wool fat, add the mixture to a mixture of yellow wax and lead plaster, previously melted and partially cooled, and make the whole homogeneous.

The plaster should be gray in color, and should contain no globules of mercury, visible to the naked eye.

Weigh 3 g of the plaster in a small flask, add 20 ccm of concentrated nitric acid, and heat the mixture for about 10 minutes on a water bath under reflux condenser until no globules of mercury are visible. Add 25 ccm of water to the mixture, washing the condenser, heat again until the clear layer of fat separates out, and after cooling filter it through purified cotton into a measuring flask of 100 ccm in capacity; wash the fat and the flask with 5 successive portions of about 5 ccm each of water, and unite the washings with the filtrate.

Add potassium permanganate solution to the united liquid until a permanent pink color or a brown precipitate is produced, make it colorless or clear by the addition of ferrous sulphate solution, then add water to make it measure 100 ccm, and filter. Add 2 ccm of ammonium ferric sulphate solution to 25 ccm of the filtrate, and titrate it with tenth-normal ammonium sulphocyanate volumetric solution; 14–15 ccm of the volumetric solution should be required to produce a brownish-red color.

EMPLASTRUM LITHARGYRI.

Lead Plaster.

Arachis Oil	5 *pts.*
Hog's Lard	5 *pts.*
Lead Oxide, *in fine powder*	5 *pts.*
Distilled Water	1 *pt.*

Add distilled water to lead oxide to make a magma, add the mixture to a mixture of arachis oil and hog's lard, heat with constant stirring, and then boil with frequent addition of a small quantity of distilled water, until its small portion, on kneading between fingers in cold water, becomes inadhesive mass. Repeatedly knead the mass with warm water to remove glycerin, and then remove water by heating on a water bath.

The plaster should be yellowish-white in color, and should contain no free lead oxide.

EMPLASTRUM LITHARGYRI COMPOSITUM.

Compound Lead Plaster.

Lead Plaster	24 *pts.*
Yellow Wax	3 *pts.*
Ammoniacum	2 *pts.*
Galbanum	2 *pts.*
Turpentine	2 *pts.*

Melt lead plaster and yellow wax together by gentle heat, and to the partially cooled mass add a mixture of ammoniacum, galbanum and turpentine, previously melted together with a small quantity of water by heating on a water bath and strained.

The plaster is yellowish, tenacious and homogeneous, and gradually acquires a dark color on keeping.

EMPLASTRUM RESINAE.

Resin Plaster.

Lead Plaster	40 *pts.*
Pine Resin	7 *pts.*
Yellow Wax	3 *pts.*

First melt lead plaster together with yellow wax, and then add resin to the mixture.

The plaster is yellowish in color.

EMPLASTRUM SAPONATUM.

Soap Plaster.

Lead Plaster	70 *pts.*
Yellow Wax	10 *pts.*

Medicinal Soap	5 *pts.*
Arachis Oil	1 *pt.*
Purified Camphor	1 *pt.*

Melt lead plaster and yellow wax together by heating, add medicinal soap to the partially cooled mixture, and then mix it with a triturated mixture of arachis oil and purified camphor.

The plaster is yellowish in color.

EMPLASTRUM SAPONATUM SALICYLATUM.

Salicylated Soap Plaster.

Soap Plaster	8 *pts.*
Yellow Wax	1 *pt.*
Salicylic Acid, *in fine powder*	1 *pt.*

Melt soap plaster and yellow wax by heating in a pan, not made of iron, and then add salicylic acid to the mixture.

The plaster is from yellow to brownish in color.

EMPLASTRUM SCOPOLIAE.

Scopolia Plaster.

Resin Plaster	9 *pts.*
Extract of Scopolia	1 *pt.*

Melt resin plaster by heating on a water bath, and then intimately mix extract of scopolia.

The plaster has a brown color.

EMULSIONES.

Emulsions.

Emulsions are the milky preparations, which contain oils, fats, resins, gum-resins, camphor, spermaceti, waxes, balsams or other substances in very fine and homogeneous distribution.

Emulsions are prepared from seeds or the materials, described above, with the addition of gum arabic, tragacanth, egg yolk etc. in case of necessity, by the addition of water, intimate bruising, and by trituration or shaking.

When the quantity of the materials is not directed in the prescription, prepare the emulsions as follows:

(A) *Seed-emulsions.* Add a suitable quantity of water to 1 part of seed to make the strained liquid 10 parts.

(B) *Oil-emulsions.*

Oil	2 *pts.*
Gum Arabic, *in fine powder*	1 *pt.*
Water	17 *pts.*

Apricot kernel oil or arachis oil should be used in general.

EMULSIO OLEI JECORIS.

Emulsion of Cod Liver Oil.

Cod Liver Oil	500 *g.*
Gum Arabic, *in fine powder*	5 *g.*
Tragacanth, *in fine powder*	5 *g.*
Gelatin	1 *g.*
Calcium Hypophosphite	5 *g.*
Cinnamon Water	100 *g.*
Benzaldehyde	3 *dps.*
Syrup	84 *g.*
Water	300 *g.*

Homogeneously mix gum arabic and tragacanth with cod liver oil in a large, dry flask, then add almost cooled gelatin solution, and vigorously shake the mixture for at least 5 minutes to complete the emulsification. Gradually add to the emulsion the solution of calcium hypophosphite in cinnamon water, then benzaldehyde and syrup with shaking, allow the mixture to stand for 1–2 hours, and finally shake it vigorously.

The emulsion is a yellowish-white, thick liquid, and contains 50 per cent. of cod liver oil.

EXTRACTA.

Extracts.

The extracts are the products, prepared by evaporating the extractive solutions of the drugs.

The drugs, which serve for the preparation of extracts, should be stirred frequently while they are being extracted.

The extractive solutions, after being filtered, should be evaporated on a water bath with constant stirring until they get a suitable consistency.

The aqueous or alcoholic solution should be evaporated at a temperature not exceeding 85°, and the ethereal solution at a temperature not exceeding 35°.

At the end of evaporation, the alcoholic solution should be brought to a suitable consistency by adding a little alcohol and stirring.

The extracts are divided into 3 classes according to their consistency, as follows:

(1) *Thin extracts:* Those which have the consistence of fresh honey.

(2) *Thick extracts:* Those which become stringy after cooling, though not decantable.

(3) *Dry extracts:* Those which are capable of being ground.

In order to prepare dry extracts, the solution is evaporated in a porcelain dish until the residue becomes sufficiently tenacious and capable of being ground after cooling. The residue is taken out of the dish, while still warm, by means of a spatula, drawn out in form of threads, dried on a glass plate at 40–50°, or over quicklime, and transfered, after grinding, to a vessel, that has been previously warmed.

The extracts should have the taste and odor of the drugs, used for their preparation.

Incinerate 2 g of extracts, warm the residue with 5 ccm of diluted hydrochloric acid, and filter; the filtrate should be, if any, not more than slightly affected by hydrogen sulphide water.

Preserve the extracts in well-closed, glass or porcelain containers, in a cool place.

The thick extracts may be kept as the powder of half strength or the solution of half strength, prepared by the following way:

(1) *The powder.*

Thick Extracts	4 *pts.*
Licorice Root, *in fine powder*	3 *pts.*

Mix them in a porcelain dish, and dry the mixture on a water bath until the loss of weight hardly takes place; triturate it, while still warm, and add a suitable quantity of licorice root, in fine powder, as to make the whole 8 parts.

(2) *The solution.*

Thick Extracts	10 *pts.*
Water	6 *pts.*
Alcohol	1 *pt.*
Glycerin	3 *pts.*

Add water, alcohol and glycerin to the thick extract, and make a solution.

EXTRACTA FLUIDA.

Fluidextracts.

The fluidextracts are the extractive solutions of drugs, the weight of which is made exactly equal to that of the drugs, used for the preparation.

Fluidextracts are prepared according to the following method, using the particular menstrum mentioned under each article.

Pour the menstrum I on 100 parts of the powdered drug, thoroughly mix them together, cover the vessel, when the drug ceases to absorb any more liquid, and allow the mixture to stand for 12 hours. Pack the mixture in a suitable percolator, press strongly to diminish the empty space as possible, then add the menstrum II, so as it begins to drop from the lower orifice of the percolator, while the surface of the drug is still covered with it, close the lower orifice, cover the upper one, and allow it to stand at 15–25° for 48 hours.

Then open the lower orifice, and allow the liquid to drop in such a rate that not more than 30 drops flow out in 1 minute.

Reserve the first 85 parts of the percolate separated as No. I. Add the menstrum II to the percolator until the drug is exhausted, and evaporate the resulting percolate II or evaporate it after the distillation of alcohol, until a thin extract is obtained. The temperature of evaporation should be restricted, so as to lose the volatile constituents of the drug as little as possible. The thin extract, thus obtained, is mixed with the percolate I, which has been previously obtained, and the menstrum II is further added to that mixture, so that exactly 100 parts of the fluidextract is obtained.

When 2 kinds of menstrum are not used, prepare the fluidextract according to the above method, using the menstrum directed.

The fluidextracts, prepared by the above method, should be left aside for 1–2 days, and filtered if necessary.

Fluidextracts should have the taste and odor of the drugs, used for their preparation.

Incinerate 2 g of fluidextracts, warm the residue with 5 ccm of diluted hydrochloric acid, and filter; the filtrate should be, if any, not more than slightly affected by hydrogen sulphide water.

EXTRACTUM ALOËS.

Extract of Aloes.

Aloes	1 *pt.*
Boiling Water	5 *pts.*
Common Water	5 *pts.*

Dissolve aloes in boiling water, add common water to the solution, and allow the mixture to stand for 2 days. When the resin has separated, decant the supernatant liquid, and evaporate it to a dry extract.

The extract has a yellowish-brown color, and should be clearly or almost clearly soluble in 20 parts of boiling water.

EXTRACTUM CANNABIS INDICAE.

Extract of Indian Hemp.

Indian Hemp, *in coarse powder*	1 *pt.*
Alcohol	10 *pts.*

Pour 5 parts of alcohol on the drug, macerate it for 6 days, and express. Pour again 5 parts of alcohol on the residue, macerate it for 3 days, and express. Unite the percolates, filter, and evaporate the liquid to a thick extract.

Extract of Indian Hemp has a dark green color, and is comletely soluble in alcohol, but slightly soluble in water.

Preserve it with care.

Maximum dose at a time: 0,1 g.
Maximum dose for a day: 0,3 g.

EXTRACTUM CASCARAE SAGRADAE FLUIDUM.

Extractum Rhamni Purshianae fluidum.

Fluidextract of Cascara Sagrada.

Cascara Sagrada, *in medium powder*	100 *pts.*
Alcohol.	
Distilled Water.	

Prepare the fluidextract by the method described under *Extracta fluida*, using the menstrum consisting of equal parts of alcohol and distilled water.

Fluidextract of Cascara Sagrada is a clear, dark brownish-red liquid. It is rendered turbid by the addition of much water, and the clear filtrate acquires a reddish-brown color with ammonia water.

EXTRACTUM CHINAE.

Extract of Cinchona.

Cinchona Bark, *in coarse powder*	1 *pt.*
Diluted Alcohol	10 *pts.*

Pour 5 parts of diluted alcohol on the bark, macerate for 6 days, and strain by expression. Pour again 5 parts of diluted alcohol on the residue, macerate for 3 days, and then express. Unite the strained liquids, filter after setting aside for 2 days, and evaporate the filtrate to a dry extract.

Extract of Cinchona has a reddish-brown color and a very bitter, astringent taste, and is soluble with turbidity in water.

Dissolve 1,5 g of the extract in a mixture of 2 ccm of alcohol and 1 ccm each of water and diluted hydrochloric acid, shake the solution after the addition of 6 ccm of water, 85 ccm of ether and 20 ccm of chloroform, then add 2 ccm of sodium hydroxide solution, and allow the mixture to stand for 10 minutes with frequent vigorous shaking. Vigorously shake it again with 3 g of tragacanth powder, set it aside for 5 minutes, and then quickly filter the clear chloroform-ether solution through purified cotton. Distil off the chloroform from 70 ccm of the filtrate, dissolve the residue, by gentle heat, in 10 ccm of absolute alcohol, add to the solution 10 ccm of water and 3 drops of haematoxylin solution, and then add tenth-normal hydrochloric acid volumetric solution with gentle shaking, until a reddish-brown mixture results. Then add 50 ccm of water, and continue the titration; at least 3,9 ccm of tenth-normal hydrochloric acid volumetric solution should be required in order to produce a yellow color.

2 ccm of the neutralized solution, when mixed with 8 ccm of water and 1 ccm of chlorine water, should develop a beautiful green color on the addition of ammonia water.

EXTRACTUM CHINAE FLUIDUM.

Fluidextract of Cinchona.

Cinchona Bark, *in coarse powder*...........100 *pts.*
Alcohol.
Distilled Water.
Glycerin.

Prepare the fluidextract according to the method described under *Extracta fluida*, using a suitable quantity of the menstrum I, consisting of 16 parts of alcohol, 1 part of distilled water and 4 parts of glycerin, and a suitable quantity of the menstrum II, consisting of 4 parts of alcohol and 1 part of distilled water.

Fluidextract of Cinchona is a dark reddish-brown liquid, having a very bitter, astringent taste; soluble with turbidity in water, and in alcohol.

Add 2 ccm of diluted hydrochloric acid and 8 ccm of water to 2,5 g of the extract, shake it with 80 ccm of ether and 20 ccm of chloroform, add 2 ccm of sodium hydroxide solution, and allow the mixture to stand for 10 minutes with frequent vigorous shaking.

Vigorously shake it again with 3 g of tragacanth powder, set it aside for 5 minutes, and quickly filter the clear chloroform-ether solution through purified cotton. Distil off the chloroform from 80 ccm of the filtrate, dissolve the residue, by gentle heat, in 10 ccm of absolute alcohol, add 10 ccm of water and 3 drops of haematoxylin solution, and titrate it with tenth-normal hydrochloric acid volumetric solution with light shaking. When a reddish-brown color is produced, add 50 ccm of water, and continue the titration; at least 2,3 ccm of tenth-normal hydrochloric acid volumetric solution should be required in order to produce a yellow color. 2 ccm of the neutralized solution, when mixed with 8 ccm of water and 1 ccm of chlorine water, should develop a beautiful green color with ammonia water.

EXTRACTUM COLOCYNTHIDIS.

Extract of Colocynth.

Colocynth, *coarse cut*	2 *pts.*
Diluted Alcohol	45 *pts.*
Alcohol	15 *pts.*
Common Water	15 *pts.*

Pour diluted alcohol upon colocynth, macerate it for 6 days, and express. Then pour alcohol and common water on the residue, macerate it again for 3 days, and express. Unite the percolates, filter, and evaporate the filtrate until a dry extract is obtained.

Extract of Colocynth has a yellowish-brown color and a very bitter taste, and is soluble with turbidity in water.

Dissolve 0,01 g of the extract in 1 ccm of diluted alcohol, and evaporate; the residue should develop a deep orange-red color with 1–2 drops of sulphuric acid.

Preserve it with care.

Maximum dose at a time: 0,05 g.
Maximum dose for a day: 0,15 g.

EXTRACTUM COLOMBO.

Extract of Calumba.

Calumba Root, *in coarse powder*	1 *pt.*
Alcohol	3 *pts.*
Common Water	3 *pts.*

Pour 2 parts each of alcohol and water upon the drug, macerate it for 3 days, and express. Then pour 1 part each of alcohol and water upon the residue, mecerate it again for 2 days, and express. Unite the percolates, filter, and evaporate the filtrate to a dry extract.

Extract of Calumba has a brown color, and is soluble with turbidity in water.

EXTRACTUM CONDURANGO FLUIDUM.

Fluidextract of Condurango.

Condurango Bark, *in medium powder*	100 *pts.*
Alcohol.	
Distilled Water.	
Glycerin.	

Prepare the fluidextract according to the method described under *Extracta fluida,* using a suitable quantity of the menstrum I, consisting of 3 parts of alcohol, 5 parts of distilled water and 2 parts of glycerin, and a suitable quantity of the menstrum II, consisting of 1 part of alcohol and 3 parts of distilled water.

Fluidextract of Condurango is a brown liquid.

Mix 1 ccm of the extract with 4 ccm of water, and filter the turbid liquid; the clear filtrate is rendered conspicuously turbid by boiling, and becomes again clear or almost clear on cooling. Dilute 2 ccm of the clear liquid with 8 ccm of water; the solution should produce an abundant flocculent precipitate on the addition of tannic acid solution.

EXTRACTUM COPTIDIS.

Extract of Coptis.

Prepare the extract, using coarsely powdered coptis rhizome, in the same way as *Extractum Colombo*.

Extract of Coptis has a brown color, and is soluble with turbidity in water.

EXTRACTUM CUBEBARUM.

Extract of Cubeb.

Cubeb, *in coarse powder*	2 *pts.*
Ether	5 *pts.*
Alcohol	5 *pts.*

Pour 3 parts each of ether and alcohol on the powder, macerate it for 3 days with frequent stirring, and strain by expression. Then pour 2 parts each of ether and alcohol on the residue, macerate it for 3 days, and finally express. Unite the strained liquids, filter, and evaporate the filtrate to a thin extract.

Extract of Cubeb has a brown color, and is soluble in a mixture of equal parts of alcohol and ether, but insoluble in water.

Pour on 1 drop of the extract 1 ccm of a mixture, consisting of 4 parts of sulphuric acid and 1 part of water; the resulting liquid produces a red color, which gradually fades on diluting with water.

Shake the extract when required for use.

EXTRACTUM FERRI POMATI.

Extract of Iron Malate.

Sour ripe Apple	50 *pts.*
Iron Powder	1 *pt.*

Crush the apple to a porridge, express, then add iron powder to the expressed liquid, and immediately warm the mixture on a water bath, until the evolution of gas ceases. Add water to the mixture to make it weigh 50 parts, set it aside for a few days, filter, and evaporate the filtrate to a thick extract.

Extract of Iron Malate has a greenish-black color and a somewhat astringent, sweet, but not penetrating taste, and is clearly soluble in water.

It contains not less than 5 per cent. of pure iron (Fe = 55,84).

Completely incinerate 0,5 g of the extract with slaked lime in a porcelain dish, macerate the residue with water, acidified with nitric acid, and filter; the filtrate should produce no more than an opalescence with silver nitrate solution.

Incinerate 1 g of the extract in a porcelain crucible, moisten the residue several times with 1–2 drops of nitric acid, evaporate, and incinerate. Dissolve the residue, by warming, in 5 ccm of hydrochloric acid, dilute the solution with 20 ccm of water, then add to the cooled solution 2 g of potassium iodide, and set it aside well-closed at ordinary temperature for 1 hour; at least 9 ccm of tenth-normal sodium thiosulphate volumetric solution should be required to decolorize the solution.

EXTRACTUM FILICIS.

Extract of Male Fern.

Male Fern Rhizome, *in coarse powder*..........1 *pt.*
Ether ....5 *pts.*

Pour 3 parts of ether on the drug, macerate it in a tightly closed vessel for 3 days, and decant the supernatant liquid. Then pour 2 parts of ether on the residue, macerate it again for 3 days, and strain by expression. Filter the united liquid, and completely remove the ether by distillation until a thin extract is obtained.

Extract of Male Fern has a greenish color, and is soluble in ether, but insoluble in water.

The extract, when stirred up and diluted with glycerin, should show no starch grains under the microscope.

Dissolve 5 g of the extract, mixed well, in 40 ccm of ether, add 100 ccm of baryta water (3 : 100), shake the mixture strongly for 5 minutes, and set it aside for 10 minutes. Filter the aqueous layer, add hydrochloric acid to 86 ccm of the filtrate until the solution becomes acid, shake it well with at first 30 ccm, then 20 ccm, at last 15 ccm of ether, and then filter the ethereal solution into a flask, previously dried and weighed. Wash the filter paper with ether, and distil the ether off; the residue, dried at 100° and cooled, should weigh 1–1,12 g.

The extract should be stirred up homogeneously when wanted for use.

Preserve it with care.

Maximum dose for a day: 10 g.

EXTRACTUM GENTIANAE.

Extract of Gentian.

Gentian Root, *coarse cut*	1 *pt.*
Common Water	8 *pts.*
Alcohol	1 *pt.*

Pour 5 parts of water on the drug, macerate it for 48 hours, and express. Then pour 3 parts of water on the residue, macerate it for 12 hours, and express. Collect the expressed liquids, reduce the liquid to 3 parts by evaporation, add alcohol to the cooled residue, and allow the mixture to stand for 2 days in a cool place. Filter it, and evaporate the filtrate to a thick extract.

Extract of Gentian has a reddish-brown color, and is almost clearly soluble in water.

It may be used as a substitute for *Extractum Gentianae scabrae.*

O EXTRACTUM GENTIANAE SCABRAE.

Extract of Ryutan (*Japanese Gentian*).

Prepare the extract from Ryutan Root, coarse cut, in the same way as in the case of *Extractum Gentianae.*

Extract of Ryutan has a reddish-brown color, and is almost clearly soluble in water.

It may be used as a substitute for *Extractum Gentianae.*

EXTRACTUM HAMAMELIDIS FLUIDUM.

Fluidextract of Hamamelis.

Hamamelis Leaves, *in coarse powder.*
Alcohol.
Distilled Water.
Glycerin.

Prepare the fluidextract according to the method described under *Extracta fluida,* using a suitable quantity of the menstrum I, composed of 5 parts of alcohol, 8 parts of water and 1 part of glycerin, and a suitable quantity of the menstrum II, composed of 5 parts of alcohol and 8 parts of distilled water.

The fluidextract is a dark reddish-brown liquid; taste acrid.

EXTRACTUM HYDRASTIS FLUIDUM.

Fluidextract of Hydrastis.

Hydrastis Rhizome, *in medium powder.*
Alcohol.
Distilled Water.

Prepare the fluidextract according to the receipt described under *Extracta fluida*, by using a suitable quantity of the menstrum, consisting of 7 parts of alcohol and 3 parts of distilled water.

Fluidextract of Hydrastis is a dark brown liquid, 1 drop of which colors 200 ccm of water distinctly yellow.

3 drops of the extract, diluted with 10 ccm of water, immediately produce a red color by the addition of 2 ccm of chlorine water.

Dilute 1 part of the extract with 10 parts of water, and filter; 5 ccm of the clear filtrate becomes slightly turbid with 1 ccm of diluted nitric acid, and deposits yellow crystals after a few minutes.

1 g of the extract, when evaporated and dried at 100°, should leave not less than 0,2 g of residue.

Weigh 15 g of the extract in a porcelain dish, which has been previously weighed, evaporate it to about 5 g on a water bath, transfer the residue into a flask, wash the dish with about 10 ccm of water, and mix the washing with the main portion in the flask. Add to the resulting solution 15 ccm of petroleum benzin, 75 ccm of ether and 5 ccm of ammonia water, and set the mixture aside with frequent shaking for 1 hour. Take 75 ccm of the ethereal solution, filter it through a dry filter paper, placed in a well-covered funnel, into a separator, and shake it vigorously for 2–3 minutes with 10 ccm of a mixture of 1 part of hydrochloric acid and 4 parts of distilled water.

On separation of the clear acid liquid, introduce it into a flask, shake the remaining ethereal solution twice with 5 ccm each of water, acidified with a few drops of hydrochloric acid, and mix the acid liquid with that in the flask. Oversaturate the united solution with ammonia water, add 50 ccm of ether, and allow the mixture to stand for 1 hour with frequent strong shaking. Filter 40 ccm of the upper ethereal solution through a dry filter paper into a dry flask, previously weighed and covered well, and distil off the ether; the residue, when dried at 100° and cooled, should weigh at least 0,2 g. Dissolve it in a mixture of 10 ccm of water and 1 ccm of diluted sulphuric acid, and shake the solution with 5 ccm of potassium permanganate solution until the latter is decolorized; the filtrate should develop a blue fluorescence.

EXTRACTUM HYOSCYAMI.

Extract of Hyoscyamus.

Hyoscyamus Leaves, *in coarse powder*	1 *pt.*
Diluted Alcohol	8 *pts.*

Pour 5 parts of diluted alcohol on the drug, macerate it at ordinary temperature with frequent shaking for 6 days, and express. Then pour 3 parts of diluted alcohol on the residue, macerate it for 3 days in the same way as before, and express again. Unite the expressed liquids, filter it after setting aside for 2 days, and remove the alcohol by evaporation. Dilute the residue with equal parts of common water, set aside for 24 hours, filter, and evaporate the filtrate to a thick extract.

Extract of Hyoscyamus has a dark brown color, and is soluble with turbidity in water.

Dissolve 6 g of the extract in 8 ccm of water, shake the solution with 120 ccm of ether, add 1 ccm of ammonia water, allow the mixture to stand for 15 minutes with frequent vigorous shaking, and then set it aside quietly for 15 minutes. Quickly filter the upper, clear, ethereal solution through purified cotton, distil off the ether from 80 ccm of the filtrate, and dissolve the residue, by gentle heat, in 5 ccm of absolute alcohol. Add to the solution 10 ccm of water, 30 ccm of ether and 3 drops of haematoxylin solution, and titrate it with hundredth-normal hydrochloric acid volumetric solution with light shaking, until a reddish-brown color is produced. Add to the mixture 30 ccm of water, and continue the titration with frequent strong shaking; 4,1–4,2 ccm of hundredth-normal hydrochloric acid volumetric solution should be required in order to color the lower aqueous solution yellow.

Evaporate 10 ccm of the former ethereal solution, add 2–3 drops of fuming nitric acid to the residue, and evaporate it on a water bath; after cooling, it should develop a violet color by the addition of 2–3 drops of alcoholic potassium hydroxide solution.

Mix 0,1 g of the extract with 2 ccm of water, filter, shake the filtrate with 10 ccm of ether, and separate the ethereal solution. Shake the latter solution with 10 ccm of water, mixed with 2 drops of ammonia water; the lower aqueous solution should develop no bluish fluorescence.

The extract of a higher alkaloid percentage may be brought within the limits by homogeneously mixing a suitable quantity of extract of licorice.

Preserve it with care.

Maximum dose at a time: 0,1 g.
Maximum dose for a dry: 0,3 g.

O EXTRACTUM LIQUIRITIAE.

Extract of Licorice.

Prepare the extract from licorice root, cut in pieces, in the same way as in the case of *Extractum Gentianae.*

The extract has a brown color, and is almost clearly soluble in water.

EXTRACTUM OPII.

Extract of Opium.

Opium	1 *pt.*
Distilled Water	7 *pts.*

Pour 4 parts of distilled water on opium, macerate, and then strain by expression after 24 hours. Pour 3 parts of distilled water on the residue, macerate it for 24 hours, and strain by expression. Unite the strained liquids, allow the liquid to settle, then filter, and finally evaporate the filtrate to a dry extract.

Extract of Opium has a brown color, and is soluble with turbidity in water.

When 3 g of the extract is examined according to the method described under *Opium,* 12,2–12,9 ccm of tenth-normal potassium hydroxide volumetric solution should be required, and the tests of the neutralized solution should conform to those given under *Opium*.

The extract of higher morphine percentage may be brought within the limits by admixture with milk sugar.

Preserve it with care, in well-stoppered bottles.

Maximum dose at a time: 0,1 g.
Maximum dose for a day: 0,3 g.

EXTRACTUM QUASSIAE.

Extract of Quassia.

Japanese Quassia Wood, *coarse cut*	1 *pt.*
Common Water	24 *pts.*

Pour 12 parts of water on the drug, macerate it for 1 day, then boil for 1 hour, and express. Pour 12 parts of water on the residue, boil, and express. Unite the expressed liquids, allow the liquid to settle, filter, and finally evaporate the filtrate to a dry extract.

The extract is brown in color, and soluble with turbidity in water.

EXTRACTUM RHEI.

Extract of Rhubarb.

Rhubarb, *coarse cut*	2 *pts.*
Alcohol	6 *pts.*
Common Water	9 *pts.*

Pour 4 parts of alcohol and 6 parts of common water on the drug, macerate it for 24 hours, and then express. Pour 2 parts of alcohol and 3 parts of common water on the residue, macerate it for 24 hours, and express. Allow the united strained liquid to settle, filter, and evaporate the filtrate to a dry extract.

The extract is brown in color, and soluble with turbidity in water.

An aqueous solution of the extract acquires a blood-red color with ammonia water, and the resulting solution produces a yellow, flocculent precipitate on the addition of hydrochloric acid.

O EXTRACTUM SCOPOLIAE.

Extract of Scopolia.

Scopolia Rhizome, *in coarse powder*............1 *pt.*
Diluted Alcohol ....3 *pts.*
Common Water ....3 *pts.*

Pour 2 parts each of diluted alcohol and common water on the drug, macerate it for 3 days, and strain by expression. Pour 1 part each of diluted alcohol and common water on the residue, macerate it for 2 days, and strain by expression. Unite the strained liquids, allow the liquid to settle for 2 days, filter, and finally evaporate the filtrate to a thick extract.

Extract of Scopolia has a brown color, and is soluble with a slight turbidity in water.

Dissolve 3 g of the extract in 5 ccm of water, shake the solution with 90 ccm of ether, then add 1 ccm of ammonia water, allow the mixture to stand for 15 minutes with frequent vigorous shaking, and set it aside quietly for 15 minutes. Quickly filter the upper, clear, ethereal solution through purified cotton, distil off the ether from 60 ccm of the filtrate, and dissolve the residue, by gentle heat, in 5 ccm of absolute alcohol. Add to the solution 10 ccm of water, 30 ccm of ether and 3 drops of haematoxylin solution, and titrate it with hundredth-normal hydrochloric acid volumetric solution with light shaking, until a reddish-brown color is produced. Add to the mixture 30 ccm of water, and continue the titration with frequent strong shaking; 10,3-10,5 ccm of hundredth-normal hydrochloric acid volumetric solution should be required in order to color the lower aqueous solution yellow.

Evaporate 5 ccm of the former ethereal solution, add 2-3 drops of fuming nitric acid to the residue, and evaporate it on a water bath; after cooling, it should develop a violet color by the addition of 2–3 drops of alcoholic potassium hydroxide solution.

The extract of higher alkaloid percentage may be brought within the limits by homogeneously mixing a suitable quantity of extract of licorice.

Preserve it with care.

Maximum dose at a time: 0,05 g.
Maximum dose for a day: 0,15 g.

O EXTRACTUM SECALIS CORNUTI.

Extract of Ergot.

Ergot, *in coarse powder*	2 *pts.*
Distilled Water	8 *pts.*
Alcohol	1 *pt.*

Pour 4 parts of distilled water on ergot, macerate it for 6 hours, and then express. Pour 4 parts of distilled water on the residue, macerate it for 6 hours, and express. Unite the expressed liquids, evaporate the liquid to 1 part, add to the residue alcohol, and allow the mixture to settle for 3 days. Filter it, and evaporate the filtrate to a thick extract.

Extract of Ergot has a reddish-brown color, and is clearly soluble in water, and in a mixture of equal parts of water and alcohol.

Dissolve 0,2 g of the extract in 5 ccm of water, make the solution alkaline with ammonia water, and shake it with 10 ccm of ether. Dissolve the residue, obtained by the evaporation of the clear, ethereal solution, in 2 ccm of glacial acetic acid, to which 1 drop of diluted ferric chloride solution has been added, and add to the solution sulphuric acid, so as to form 2 layers; a bluish-violet zone should appear at the line of contact.

Preserve it with care.

Maximum dose at a time: 0,3 g.
Maximum dose for a day: 1 g.

EXTRACTUM SECALIS CORNUTI FLUIDUM.

Fluidextract of Ergot.

Ergot, *in coarse powder.*
Alcohol.
Distilled Water.

Prepare the fluidextract according to the method described under *Extracta fluida,* using a suitable quantity of the menstrum, consisting of 1 part of alcohol and 4 parts of distilled water.

Fluidextract of Ergot is a clear, reddish-brown liquid, and is miscible without turbidity with water.

When 0,5 g of the extract is examined according to the method described under *Extractum Secalis cornuti,* the same reaction should be displayed.

Preserve it with care.

EXTRACTUM STRYCHNI.

Extract of Nux Vomica.

Nux Vomica, *in coarse powder*	2 *pts.*
Diluted Alcohol	7 *pts.*

Pour 4 parts of diluted alcohol on nux vomica, extract it by heating for 24 hours, and express. Then pour 3 parts of diluted alcohol on the residue, and repeat the same precedure as before. Unite the expressed liquids, filter, and finally evaporate the filtrate to a dry extract.

Extract of Nux Vomica has a brown color and an exceedingly bitter taste, and is soluble with turbidity in water.

An alcoholic solution of a piece of the extract yields, when acidified with 2–3 drops of diluted sulphuric acid and evaporated on a water bath, a residue of a violet-red color, which, on adding 2–3 drops of water, fades away but reappears on evaporation.

Dissolve 1,25 g of the extract in a mixture of 4 ccm of alcohol, 8 ccm of water and 2 ccm of diluted hydrochloric acid, and evaporate the resulting solution on a water bath to about 7 ccm. After cooling, add to the residue 10 ccm of water, filter, and then wash the residue. Combine the filtrate and the washing, shake the mixture with 35 ccm of chloroform and 90 ccm of ether, then add 5 ccm of sodium hydroxide solution, shake it frequently and vigorously for 5 minutes, and set aside for 15 minutes. Quickly filter the clear chloroform-ether solution through purified cotton, distil off the chloroform from 100 ccm of the filtrate, and dissolve the residue, by gentle heat, in 5 ccm of absolute alcohol.

Then add to the solution 10 ccm of water, 30 ccm of ether and 3 drops of haematoxylin solution, and titrate it with tenth-normal hydrochloric acid volumetric solution, with light shaking, until a reddish-brown color is produced. Add to the mixture 30 ccm of water, and continue the titration with frequent strong shaking; 4,4 ccm of tenth-normal hydrochloric acid volumetric solution should be required in order to color the lower aqueous solution yellow.

The extract of higher alkaloid percentage may be brought within the limit by mixing the extract, previously dissolved in a small quantity of diluted alcohol, with milk sugar, and drying.

Preserve it with care.

Maximum dose at a time: 0,05 g.
Maximum dose for a day: 0,1 g.

EXTRACTUM TARAXACI.

Extract of Taraxacum.

Taraxacum, *medium cut*	1 *pt.*
Common Water	8 *pts.*
Alcohol	1 *pt.*

Pour 5 parts of common water on the drug, macerate it for 48 hours, and strain by expression. Pour 3 parts of common water on the residue, macerate it for 12 hours, and strain by expression. Unite the strained liquids, evaporate it to 2 parts, then add alcohol, and allow the mixture to settle for 2 days in a cool place. Filter it, and evaporate the filtrate to a thick extract.

The extract is brown in color, and almost clearly soluble in water.

FEL TAURI INSPISSATUM.

Oxgall.

Heat the bile of the healthy ox, Bos Taurus *L.*, filter it into a porcelain dish, and evaporate the filtrate on a water bath to the consistency of a thick extract.

Oxgall has a greenish-brown color, and is almost completely soluble in water. Its aqueous solution reacts neutral or slightly alkaline.

Add a small quantity of sugar to an aqueous solution of oxgall, and then add sulphuric acid; it produces a dark violet-red color, and becomes considerably turbid when diluted with an excess of water.

It has a slightly sweet taste, with a very bitter after-taste, and a characteristic, but not fetid odor.

On incineration, it should leave 8–10 per cent. of solid residue.

FERRI-AMMONIUM CITRICUM.

Iron and Ammonium Citrate.

Solution of Ferric Citrate	3 *pts.*
Ammonia Water	1 *pt.*

Mix them, evaporate the mixture at a temperature not exceeding 60° to a consistence of syrup, and dry in thin layers by warming gently on glass plates, until it can be removed in small flakes.

Reddish-brown, thin, transparent scales, deliquescent in the air; easily soluble in water, showing a weak acid reaction, but insoluble in alcohol.

An aqueous solution of Iron and Ammonium Citrate does not yield a blue color with potassium ferrocyanide solution, unless it is acidified with hydrochloric acid.

When heated with sodium hydroxide solution, its aqueous solution yields a reddish-brown precipitate with evolution of ammonia, and the filtrate, when slightly acidified with acetic acid and mixed with calcium chloride solution, gives a clear solution, which, on heating, gradually yields a white, crystalline precipitate.

Boil its aqueous solution (1 : 50) with an excess of potassium hydroxide solution until the iron is completely precipitated, and then filter; the filtrate, when acidified with acetic acid and allowed to stand for a long time, should produce no crystalline precipitate. The same solution, acidified with nitric acid, should produce no more than a slight turbidity with barium nitrate solution.

An aqueous solution (1 : 50) of the salt, acidified with nitric acid, should produce no more than a slight opalescence with silver nitrate solution, and should it produce no change, nor any more than a bluish-green color with potassium ferricyanide solution.

When strongly heated, 1 g of the salt should leave 0,25–0,3 g of ferric oxide, which shows no alkaline reaction.

Preserve it in well-stoppered bottles, protected from light.

FERRI-KALIUM TARTARICUM.

Iron and Potassium Tartrate.

$KFeC_4H_4O_7 = 258,99$

Solution of Ferric Sulphate	6 *pts.*
Distilled Water	.85 *pts.*
Ammonia Water	5 *pts.*
Potassium Bitartrate	2 *pts.*

Add 60 parts of distilled water to solution of ferric sulphate, pour the resulting solution, with stirring, into ammonia water, previously diluted with 10 parts of distilled water, and then wash the precipitate with distilled water, until the washing produces no more than a slight turbidity with barium nitrate solution. Add to the moistened precipitate 15 parts of distilled water and potassium bitartrate, dissolve the ingredients by warming on a water bath, with stirring, at a temperature not exceeding 60°, and filter the solution while still warm. Allow the filtrate to settle for 24 hours in a cool dark place, then filter again, evaporate the filtrate to a consistence of syrup, and dry it in thin layers on glass plates by gentle heat, until it can be removed in small flakes.

Lustrous, transparent, reddish-brown flakes, slightly deliquescent in the air; easily soluble in water, showing a neutral reaction, but insoluble in alcohol.

An aqueous solution of Iron and Potassium Tartrate does not yield a blue color with potassium ferrocyanide solution, unless it is acidified with hydrochloric acid.

Boil its concentrated, aqueous solution with an excess of potassium hydroxide solution, until the iron is completely precipitated, and filter; the filtrate, when acidified with acetic acid, produces a white, crystalline precipitate.

An aqueous solution (1 : 5) of the salt should neither produce any precipitate with ammonia water, nor evolve any odor of ammonia when heated with sodium hydroxide solution.

When strongly heated, 1 g of the salt should evolve an odor resembling burning sugar, and should leave about 0,6 g of a strongly alkaline, brown residue, which contains about 0,3 g of ferric oxide.

Preserve it in well-stoppered bottles, protected from light.

FERRUM CARBONICUM SACCHARATUM.

Saccharated Ferrous Carbonate.

Ferrous Sulphate	5 *pts.*
Sodium Bicarbonate	3,5 *pts.*
Milk Sugar, *in powder*	1 *pt.*
White Sugar, *in powder*	3 *pts.*
Boiling Distilled Water	20 *pts.*
Lukewarm Distilled Water	50 *pts.*

Dissolve ferrous sulphate in 20 parts of boiling distilled water, filter the solution into a large flask containing a clear solution of sodium bicarbonate in lukewarm distilled water, thoroughly mix, fill the flask with boiling water, cork it loosely, and allow the mixture to subside. Draw off the clear, supernatant liquid by means of a siphon, fill the flask again with boiling distilled water, and allow the mixture to settle.

Again draw off the clear, supernatant liquid, and repeat the washing in the same manner, until the decanted liquid hardly becomes turbid by the addition of barium nitrate solution. Drain the precipitate as possible, then transfer it to a porcelain dish, which contains milk sugar and white sugar, mix them intimately, and dry the mixture on a water bath.

Reduce it to a powder by triturating in a mortar, and add dry, powdered white sugar to make the product weigh 10 parts.

Saccharated Ferrous Carbonate is a greenish-gray powder, with a sweet, slightly ferruginous taste, and contains 9,5–10 per cent. of pure iron (Fe=55,84).

When dissolved in hydrochloric acid, it evolves carbon dioxide and forms a greenish-yellow solution, which, when diluted with water, yields a blue precipitate with potassium ferrocyanide or ferricyanide solution.

An aqueous solution (1 : 50) of Saccharated Ferrous Carbonate, obtained by the addition of as little hydrochloric acid as possible, should produce no more than a slight turbidity with barium nitrate solution.

Dissolve 1 g of Saccharated Ferrous Carbonate in 10 ccm of diluted sulphuric acid at ordinary temperature, add potassium permanganate solution (1 : 200) until the solution assumes a faint red color for a short time, then add, after it has been decolorized, 2 g of potassium iodide, and allow the mixture to stand closed for 1 hour at ordinary temperature. The mixture should require for decolorization 17–17,8 ccm of tenth-normal sodium thiosulphate volumetric solution (Indicator : Starch solution).

FERRUM CITRICUM OXYDATUM.

Ferric Citrate.

Evaporate solution of ferric citrate at a temperature not exceeding 60° to a syrupy consistence, and dry it in thin layers by gently warming on glass plates, until it can be removed in small flakes.

Transparent, reddish-brown flakes, permanent in the air; completely but slowly soluble in cold water, readily in boiling water, showing an acid reaction, but insoluble in alcohol.

An aqueous solution of Ferric Citrate acquires, with potassium ferrocyanide solution, a blue color, and produces a blue precipitate by the subsequent addition of hydrochloric acid.

When heated with sodium hydroxide solution, its aqueous solution yields a reddish-brown precipitate, and the clear solution, obtained by slightly acidifying the filtrate with acetic acid and adding calcium chloride solution, gradually produces a white, crystalline precipitate on heating.

An aqueous solution (1 : 50) of the salt should yield no precipitate with ammonia water.

On boiling the same solution with an excess of potassium hydroxide solution, until the iron is completely precipitated, not more than a trace of ammonia should be evolved. A portion of the filtrate, when acidified with acetic acid and allowed to stand for a long time, should produce no crystalline precipitate, and another portion of the filtrate, acidified with nitric acid, should produce no more than a slight turbidity with barium nitrate solution.

An aqueous solution (1 : 50) of the salt, acidified with nitric acid, should produce no more than an opalescence with silver nitrate solution, and should it produce no change, nor any more than a bluish-green color by the addition of potassium ferricyanide solution.

On heating strongly, 1 g of the salt should leave 0,2–0,3 g of ferric oxide, which shows no alkaline reaction.

Preserve it in bottles, protected from light.

FERRUM JODATUM SACCHARATUM.

Saccharated Ferrous Iodide.

Iron Wire	6 *pts.*
Iodine	17 *pts.*
Distilled Water	20 *pts.*
Milk Sugar, *in powder*	79 *pts.*
Reduced Iron	1 *pt.*

Introduce iron wire, iodine and distilled water into a flask, and set it aside in a warm place with frequent shaking, until the mixture acquires a greenish color. Filter the mixture into a porcelain dish, which contains 40 parts of milk sugar, wash the flask and the filter with a small quantity of distilled water, and evaporate the united liquid, with stirring, to dryness. Quickly triturate the dry mass in a warm iron mortar, which contains 39 parts of milk sugar and reduced iron, to reduce the mixture to a dry powder, and immediately transfer it into, small, well-closed bottles.

A yellowish-white or grayish powder, highly hygroscopic, having a slightly ferruginous taste, and showing a weak acid reaction; almost completely soluble in 7 parts of water, leaving reduced iron.

Saccharated Ferrous Iodide contains about 20 per cent. of pure ferrous iodide ($FeJ_2=309,68$).

On heating strongly in the air, it burns, evolving iodine vapor, emits an odor of burning sugar, and finally leaves a solid residue, which shows no alkaline reaction.

Its aqueous solution does not acquire a dark blue color with starch solution, unless a small quantity of chlorine water is added to it.

Dissolve 0,5 g of Saccharated Ferrous Iodide in 50 ccm of water, and add to the solution 20 ccm of tenth-normal silver nitrate volumetric solution and 1 ccm each of nitric acid and ferric ammonium sulphate solution; the mixture should require not more than 13,6 ccm of tenth-normal ammonium sulphocyanate volumetric solution in order to produce a red color.

Preserve it in small, well-stoppered bottles, in a cool dark place.

FERRUM LACTICUM.

Ferrous Lactate.

$Fe(C_3H_5O_3)_2+3H_2O=288,0$

Greenish-white masses, consisting of small, acicular crystals, or a crystalline powder, having a weak, characteristic odor; soluble in about 40 parts of water, and in 12 parts of boiling water, forming a greenish-yellow solution, which shows a slightly acid reaction, but very difficultly soluble in alcohol.

An aqueous solution of the salt immediately yields a dark blue precipitate with potassium ferricyanide solution, and a light blue precipitate with potassium ferrocyanide solution.

On heating strongly, it carbonizes, emitting an odor of burning sugar.

An aqueous solution (1 : 50) of the salt should produce no more than an opalescence with lead acetate solution, and the same solution, after the addition of hydrochloric acid, should produce no dark color or no more than an opalescence with hydrogen sulphide water. The same solution, to which nitric acid has been added, should produce no more than an opalescence with barium nitrate solution, or with silver nitrate olution.

Boil 30 ccm of its aqueous solution (1 : 50) with 3 ccm of diluted sulphuric acid for a few minutes, add an excess of sodium hydroxide solution, and then filter; the filtrate, on heating with Fehling's solution, should yield no red precipitate.

The powdered salt, when mixed with sulphuric acid, should evolve no gas, and the mixture, when set aside for 30 minutes, should not become distinctly brown.

Moisten 1 g of the salt with nitric acid in a porcelain crucible, and evaporate it to dryness by gentle heat ; the solid residue thus obtained should leave, when strongly heated, at least about 0,27 g of ferric oxide, which is perfectly insoluble in water, and shows no alkaline reaction.

Preserve it in bottles, protected from light.

FERRUM PULVERATUM.

Iron Powder.

$Fe = 55,84$

A heavy, slightly lustrous, gray powder, which is attracted by the magnet; soluble in diluted sulphuric or diluted hydrochloric acid, with evolution of hydrogen gas.

A hydrochloric acid solution of Iron Powder, diluted with a large quantity of water, produces a deep blue precipitate with potassium ferricyanide solution.

It contains not less than 97,7 per cent. of pure iron.

Dissolve 1 g of Iron Powder in 20 ccm of a mixture of equal volumes of water and hydrochloric acid; the residue, if any, should weigh not more than 0,01 g, and the gas evolved should be almost odorless, and should not color a piece of paper, moistened with lead acetate solution, brownish within 5 seconds.

Oxidize the diluted hydrochloric acid solution of Iron Powder by mixing with nitric acid, add an excess of ammonia water, and filter; the filtrate should not be blue, and should hardly be affected by hydrogen sulphide water.

Mix 0,4 g each of Iron Powder and potassium chlorate with 4 ccm of hydrochloric acid in a large test tube, and, when the evolution of the gases has ceased, warm the mixture to drive off free chlorine, and filter; 1 ccm of the clear filtrate, when mixed with 3 ccm of stannous chloride solution, should acquire no dark color within 1 hour.

Dissolve 1 g of Iron Powder in about 50 ccm of diluted sulphuric acid, and dilute the solution to 100 ccm. To 10 ccm of the resulting solution add potassium permanganate solution (1 : 200) until a faint red color is produced, and then decolorize it with 1–2 drops of alcohol. Then add to the solution 2 g of potassium iodide, and allow to stand well-stoppered for 1 hour at ordinary temperature; at least 17,5 ccm of tenth-normal sodium thiosulphate volumetric solution should be required for the complete decolorization of the solution (Indicator: Starch solution).

O FERRUM REDUCTUM.

Reduced Iron.

A very fine, gray or grayish-black, lustreless powder, which is attracted by the magnet; when ignited, it glows and becomes dark brown.

It contains not less than 90 per cent. of pure Iron (Fe = 55,84).

Dissolve 1 g of Reduced Iron in 20 ccm of a mixture of equal volumes of water and hydrochloric acid; the residue, if any, should weigh not more than 0,01 g, and the gas evolved should be nearly odorless, and should not color a piece of paper, previously moistened with lead acetate solution, brownish within 5 seconds.

Shake 2 g of Reduced Iron with 10 ccm of water ; the liquid should not affect the color of litmus papers, and the filtrate should leave, when evaporated to dryness, not more than 0,003 g of solid residue.

Mix 0,4 g each of Reduced Iron and potassium chlorate with 4 ccm of hydrochloric acid in a large test tube, then, after the evolution of the gases has ceased, warm the mixture to drive off free chlorine, and filter; 1 ccm of the clear filtrate, when mixed with 3 ccm of stannous chloride solution, should acquire no dark color within 1 hour.

Introduce into a 100 ccm flask 0,3 g of Reduced Iron, previously well triturated, add 1,5 g of coarsely powdered iodine, and then add, in several portions, 10 ccm of potassium iodide solution. Stopper the flask closely, gently shake until the iron and iodine completely dissolve, dilute the solution to 100 ccm mark with water, and set aside; 50 ccm of the clear solution should require for decolorization not more than 10,3 ccm of tenth-normal sodium thiosulphate volumetric solution (Indicator: Starch solution).

Preserve it in well-stoppered bottles.

FERRUM SESQUICHLORATUM.

Ferric Chloride.

Orange-yellow, crystalline masses, of a strongly deliquescent nature; easily soluble in water, soluble in alcohol, and in spirit of ether.

The solution of Ferric Chloride in equal parts of water should conform to the tests for identity and purity under *Liquor Ferri sesquichlorati.*

Preserve it in glass-stoppered bottles, protected from light.

FERRUM SUBCARBONICUM.

Iron Subcarbonate.

A yellowish-brown or reddish-brown, fine, amorphous powder; insoluble in water.

Iron Subcarbonate dissolves completely, with a slight effervescence, in diluted hydrochloric acid, and the resulting solution yields a blue precipitate with potassium ferrocyanide or ferricyanide solution.

Shake 1 part of the salt with 10 parts of water, and filter; the filtrate should not immediately affect the color of litmus papers, nor should it leave, when evaporated to dryness, any more than a very little residue.

A solution (1 : 20) of the salt in water, acidified with nitric acid, should produce no more than an opalescence with barium nitrate solution, or with silver nitrate solution.

Boil the hydrochloric acid solution of the salt with a small quantity of nitric acid, add an excess of ammonia water, warm, and filter; the clear, colorless filtrate should neither be colored, nor be rendered turbid by the addition of hydrogen sulphide water or sodium carbonate solution.

FERRUM SULFURICUM.

Ferrous Sulphate.

$FeSO_4 + 7H_2O = 278{,}01$

Iron	2 *pts.*
Sulphuric Acid	3 *pts.*

Distilled Water....................................10 *pts.*
Alcohol... 6 *pts.*

Dissolve iron by heating in a mixture of sulphuric acid and distilled water, and, when the evolution of gas has nearly ceased, filter the solutien while still warm. Pour the filtrate, with stirring, into alcohol, immediately collect the resulting crystalline powder on a filter, wash it with a small quantity of alcohol, press, and then quickly dry it on a filter paper at ordinary temperature.

A light green, crystalline powder, efflorescent in dry air; soluble in 1,8 parts of water, forming a bluish-green solution.

A highly diluted, aqueous solution of Ferrous Sulphate yields, with potassium ferricyanide solution, a deep blue precipitate, and, with barium nitrate solution, a white precipitate, which is insoluble in diluted acids.

An aqueous solution (1 : 20), obtained by dissolving the salt in freshly boiled and cooled water, should be clear and not more than slightly redden a blue litmus paper.

Dissolve 2 g of the salt in water, oxidize it with nitric acid or bromine water, then add an excess of ammonia water, and filter; the colorless filtrate should not be affected by hydrogen sulphide water, nor should it leave, when evaporated to dryness and heated strongly, any weighable solid residue.

Preserve it in well-stoppered bottles.

FERRUM SULFURICUM CRUDUM.

Crude Ferrous Sulphate. *Iron Vitriol.*

Greenish, crystalline masses, or green crystals; usually somewhat moist, or rarely coated with whitish powder; soluble with turbidity in 2 parts of water, showing an acid reaction.

Dissolve 1 part of the salt in 5 parts of water; the solution should produce no conspicuous, brownish turbidity. The same solution, when filtered, should give a brownish-green filtrate, which, when acidified with hydrochloric acid, should produce no more than a slightly brown color with hydrogen sulphide water.

FERRUM SULFURICUM SICCUM.

Exsiccated Ferrous Sulphate.

$FeSO_4 + H_2O = 169,92$

Allow ferrous sulphate to effloresce at a temperature of 30° between filter paper for 2 days, and then dry it in a porcelain dish on a water bath, until the product loses 35–36 per cent. of its weight.

A white or nearly white powder; slowly soluble with white turbidity in water.

Exsiccated Ferrous Sulphate contains not less than 30 per cent. of pure iron (Fe=55,84).

A highly diluted aqueous solution of the salt yields, with potassium ferricyanide solution, a deep blue precipitate, and, with barium nitrate solution, a white precipitate insoluble in diluted acids.

A solution of the salt (1 : 50) in water, which has been freshly boiled and cooled, should, if any, not more than slightly redden a blue litmus paper.

Dissolve 1 g of the salt in water, oxidize it with nitric acid or bromine water, then add an excess of ammonia water, and filter; the colorless filtrate should not be affected by hydrogen sulphide water, nor should it leave, when evaporated to dryness and heated strongly, any weighable solid residue.

Dissolve 0,2 g of the salt in 10 ccm of diluted sulphuric acid, warm the solution, and add potassium permanganate solution until a faint red color is produced. Decolorize it with 2–3 drops of alcohol, add 2 g of potassium iodide, and allow the mixture to stand for 1 hour in a well-closed vessel, at ordinary temperature and protected from light ; at least 10,8 ccm of tenth-normal sodium thiosulphate volumetric solution should be required for the complete decolorization (Indicator : Starch solution).

Preserve it in well-stoppered bottles.

FLORES CHAMOMILLAE.

Chamomile Flowers.

The dried flower-heads of Matricaria Chamomilla *L.*

The involucre consists of green bracts with membraneous margins and white ones arranged in about 3 rows. The receptacle is naked, hollow, hemispherical in young flower-heads, and conical in old ones. It has 12–18 white, ligulate florets, bearing a 4–nerved, 3-toothed corolla, and many yellow tubular florets.

The flower has a strongly aromatic odor and an aromatic, somewhat bitter taste.

FLORES CINAE.

Santonica.

The dried, unexpanded flower-heads of Artemisia Cina *Berg.*

The flower-head is about 4 mm long. The involucre consists of 12–20 broadly elliptical or linear, greenish scales, obtuse at the apex, colorless and membraneous at the margin, having a prominent ridge along the midrib, on both sides of which are scattered yellowish glands and usually a few unicellular hairs. The involucre encloses 3–5 hermaphrodite, tubular florets.

Odor disagreeable and aromatic; taste bitter and cooling.

Transfer 15 g of Santonica, in fine powder and dried at 100°, into a Soxlet's apparatus, extract it with ether for 2 hours, and then distil off ether from the extract; boil the residue with 100 ccm of water and 3 g of barium hydroxide for 20 minutes, saturate the mixture with carbon dioxide, and then filter after boiling. Concentrate the filtrate to about 10 ccm by evaporation, then add 10 ccm of diluted hydrochloric acid, warm the resulting turbid liquid at about 70–80° until it becomes almost clear, and then allow it to cool. Shake it at first with 20 ccm and then twice with 10 ccm each of chloroform, unite the chloroform solutions together, and distil off the chloroform. Boil the residue for 10 minutes, under reflux condenser, with 50 ccm of a mixture of 1 part of alcohol and 8 parts of water, filter the warm liquid through a small filter paper into a small tared flask, and then wash the filter paper with 10 ccm of a boiling mixture of 1 part of alcohol and 8 parts of water. Allow the combined filtrate to deposit crystals, for 24 hours, and filter the supernatant liquid through a filter paper, previously dried at 100° and weighed. Put the filter paper in the above mentioned flask, and dry at 100°; the crystals should weigh at least 0,2 g.

FLORES KOSO.

Kousso Flowers.

The female inflorescence of Hagenia abyssinica *Willd.*, collected after withering of corolla, and dried.

The flowers are reddish and pedunculate. The receptacle is nearly cup-shaped, with internal pitcher-shaped depression, and is constricted above by a ring, bearing on its rim alternating 4- to 5-merous whorls of sepals and of small petals, which are mostly fallen off in the drug. The outer sepals are about 1 cm in length and straight, while the inner ones not exceeding 3 mm in length and bent outwards. At the bottom of the receptacle stand 2 pistils, of which only 1 develops into a small nut. 2 round bractlets are attached to the peduncle.

The powdered flower should not contain, except the ingredients of pistillate flowers and 2 bractlets, pollens, fragments of fibro-vascular bundles, thicker than 0,002 mm, or any other admixture.

The flowers, together with their bractlets, should only be employed.

FLORES LAVANDULAE.

Lavender Flowers.

The dried flowers of Lavandula vera *D. C.*

The calyx is tubular, 5 mm long, somewhat expanded above, hairy, and exhibits 10–13 veins. Of the 5 teeth on the edge of the calyx, 4 are short, while the upper one forms an obtuse, blue-colored lobe, about 1 mm in length. The corolla is blue-colored, the upper lip 2-lobed, and the lower lip 3-lobed.

Odor fragrant; taste agreeable and bitter.

O FOLIA DIGITALIS.

Digitalis Leaves.

The leaves of Digitalis purpurea *L.*, collected from the plants commencing to flower, and dried.

Digitalis Leaves, attaining a length of 30 cm and a breadth of 10 cm, narrowly ovate, sessile or running down into a 3-edged petiole, and irregularly crenate at the margin. The upper surface is dark green, and the under surface light green. The primary veins diverge at acute angles form the midrib, and form, together with those of the second and the third order, prominent net-works on the under surface, between which fine reticulum of veinlets can further be observed by transmitted light. The stomata are chiefly on the under surface, and are surrounded by 3–4 subsidiary cells. The blade bears pointed, mostly 1- to 4-cellular hairs and capitate glandular hairs. The mesophyll is devoid of oxalate crystals.

They have a repulsive, bitter taste.

Extract 1 part of Digitalis Leaves with 20 parts of boiling water, and filter; shake 10 ccm of the filtrate with 10 ccm of chloroform in a separator for a few minutes, and then shake it gently with 5 ccm each of ether and alcohol. Separate the chloroform-ether solution, and filter through a filter paper, previously moistened with choloroform. Dissolve the residue, obtained by evaporating the filtrate, in 3 ccm of glacial acetic acid, add 1 drop of diluted ferric chloride solution, and carefully add sulphuric acid to the solution, so as to form 2 layers ; a brownish-red zone at the line of contact, and upon which a bluish-green layer should be formed.

Extract 1 g of Digitalis Leaves, in fine powder, with 10 ccm of absolute alcohol under reflux condenser on a water bath for 15 minutes, and filter after cooling. Again extract the residue with 10 ccm of absolute alcohol as before, and filter. Remove the alcohol from the combined filtrate by evaporation, dissolve the residue in warm water, then filter the solution through purified cotton, and wash it with water to make the filtrate measure 10 ccm ; the resulting turbid liquid should posess 4–6 units, when assayed according to Focke's method using Rana nigromaculata *Hall.* as test animal.

For preservation, Digitalis Leaves are to be dried over quicklime, or by heat not exceeding 90°; the powder is to be filled in small bottles after being dried by the way above mentioned.

Preserve it and its powder with care, protected from light and moisture, but not over 1 year.

Maximum dose at a time : 0,2 g.
Maximum dose for a day : 1 g.

FOLIA EUCALYPTI.

Eucalyptus Leaves.

The dried leaves of Eucalyptus globulus *Labill.*

The laminae 15–30 cm long, 2,5–3 cm broad in the broadest part of the base, lanceolately scythe-shaped, tapering above, and oblique at the base. The petiole is twisted and 2–3 cm long.

The leaves are entire at the margin, dark grayish-green, glabrous, coriaceous, glandular-punctate, the veins run along the margin, anastomosing at a distance of 1–2 mm from it.

Odor and taste comphoracious and aromatic.

Eucalyptus Leaves are often mixed with the leaves of young trees, which are ovate, cordate at the base, and somewhat thin.

FOLIA HAMAMELIDIS.

Hamamelis Leaves.

The dried leaves of Hamamelis virginiana *L.*

Hamamelis Leaves are 7–15 cm long, 7 cm broad, dark green or brownish-green on the upper surface, paler on the under surface, broadly ovate, obtuse at the apex. The leaves are narrowed towards the base, which is almost unequal and often cordate at one side. The margin is sinuate and irregularly crenate. The prominent veins, about 6 in number, diverge at an acute angle from both sides of the midrib, and run into larger teeth of the margin. Between those veins is seen a conspicuous net-work of veinlets. The petioles are short.

Taste slightly astringent and somewhat bitter.

FOLIA HYOSCYAMI.

Hyoscyamus Leaves.

The leaves of Hyoscyamus niger *L.*, collected from the flowering plants, and dried.

The lower leaves attaining 30 cm in length, ovate-oblong, narrowed towards the petiole, and coarsely toothed. The cauline leaves are smaller than the lower leaves, sessile, pointed at the apex, and provided with 1–4 large, wide teeth at the margins.

The epidermis is provided with generally 2- to 4- at most 10-celled, conical hairs and multicellular, capitate, glandular hairs. The crystals of oxalate in the mesophyll are usually single or twinned, and rarely somewhat simple rosette aggregates.

Shake 20 g of Hyoscyamus Leaves, in fine powder and dried at 100°, with 150 ccm of ether, then add 5 ccm each of sodium hydroxide solution and water, and set the mixture aside for 1 hour with frequent strong shaking. Filter the clear, ethereal solution by means of a well-covered funnel, which is furnished with a dry filter paper, then introduce 75 ccm of the filtrate to a small flask, and distil off about two thirds of its volume. Transfer the cooled residue into a separator, wash the flask with 3 successive portions of 5 ccm each of ether, and then once with 10 ccm of diluted hydrochloric acid (1 : 50); combine the washings to the solution in the separator, and shake vigorously for 2 minutes.

Introduce the clear, acid solution into a second separator, shake the remaining ethereal solution with 2 successive portions of 5 ccm each of diluted hydrochloric acid (1 : 50), to the combined acid solution add 5 ccm of chloroform and sodium carbonate solution until it reacts alkaline, and then shake strongly for 2 minutes.

Transfer the clear chloroform solution, after waiting its separation, into a third separator, shake the remaining alkaline solution with 3 successive portions of 5 ccm each of chloroform, and collect the chloroform solutions.

To the combined chloroform solution add 10 ccm of hundredth-normal hydrochloric acid volumetric solution and then ether, sufficient to make the chloroform-ether solution float on the acid solution, then shake strongly for 2 minutes, and filter the clear acid solution, which makes the lower layer, through a small filter paper, previously moistened with water, into 200 ccm flask. Shake the remaining chloroform-ether solution with 3 successive portions of 10 ccm each of water, filter the aqueous layer through the same filter paper, and wash it with fresh water. Dilute the combined filtrate with water to make it measure about 100 ccm.

To the aqueous solution add ether until it forms a layer of about 1 cm in depth, then add 10 drops of iodeosin solution, and titrate it with hundredth-normal potassium hydroxide volumetric solution, shaking strongly on the addition of each drop; not more than 7,6 ccm of the volumetric solution should be required to color the lower aqueous solution light red.

The residue, obtained by evaporation of the chloroform solution, which was prepared by the same method as before, should conform to the reactions of atropine under the article of *Atropinum sulfuricum*.

Preserve it with care.

Maximum dose at a time: 0,3 g.
Maximum dose for a day: 1 g.

FOLIA JABORANDI.

Jaborandi Leaves.

The dried leaflets of the impari-pinnate leaves of several species of Pilocarpus.

The lateral leaflets are in 2–4 pairs, shortly petiolate, and the terminal one has a petiole 2–3 cm long. The leaflets are 8–16 cm, mostly 12 cm long, elliptical to lanceolate, narrowed uniformly towards both extremities, and somewhat emarginate at the apex. The primary veins diverge at an angle of about 45° from the midrib, and form loops, meeting with each other at a short distance from the margin. The numerous translucent spots of the blade are due to the intercellular secretory-reservoirs. The palisade cells are arranged in single layer, the thickness of which attaining almost one fifth of that of the blade.

When bruised, Jaborandi Leaves emit a conspicuous, aromatic odor resembling that of dried bitter orange peel, and on chewing for a long time, they produce a sharp taste.

FOLIA MENTHAE.

Peppermint Leaves.

The dried leaves of Mentha arvensis *L. var.* vulgaris *Benth.*

Peppermint Leaves are ovate to lanceolate, 3–7 cm long, sharply pointed, with irregular, sharp serration ; the surfaces are sparsely hairy, and covered with numerous glandular scales.

The leaves have characteristic, pungent, aromatic odor and taste, followed by a cooling sensation.

FOLIA PRUNI MACROPHYLLAE.

Bakuchi Leaves.

The fresh leaves of Prunus macrophylla *S. et Z.*

Bakuchi Leaves are lanceolate or long elliptical, attaining about 15 cm in length and 5 cm in breadth, acute, sharply serrate ; the laminae coriaceous, green and glossy on the upper surface, paler on the under surface. The midrib is prominent on the under surface, showing a corresponding groove on the upper surface. The lateral veins diverge from the midrib, curving upwards and anastomosing near the margin. The petiole is short, showing a groove on the upper side, and is provided with glands on either side close to the base.

The palisade cells are only found on the upper side, and enclose, here and there, rosette aggregates of oxalate.

When bruised, the leaves emit an odor of benzaldehyde.

FOLIA SALVIAE.

Salvia Leaves.

The dried leaves of Salvia officinalis *L.*

Salvia Leaves are of various shapes, usually ovate or oblong, 2–8 cm long, 1–4 cm broad, finely crenulate, vaulted upwards between the meshes of the veins. Either surface has slender, 1- to 5-cellular, thick-walled hairs containing air, capitate glandular hairs and glandular scales.

Odor characteristic and aromatic ; taste aromatic, somewhat bitter, and astringent.

FOLIA SCOPOLIAE.

Scopolia Leaves.

The leaves of Scopolia japonica *Maxim.*, collected when the plant is in flower, and dried.

The leaves are ovate or lanceolate, attaining 18 cm in length and 7 cm in breadth, with wedge-shaped base, narrowing into the petioles ; margins entire and slightly undulate.

The laminae have a few glandular hairs on the veins, and the mesophyll contains very rarely sandy crystals.

The leaves should not contain big stems.

Shake 20 g of Scopolia Leaves, in fine powder and dried at 100°, with 150 ccm of ether, then add 5 ccm each of sodium hydroxide solution and water, and set aside for 1 hour with frequent strong shaking. Filter the clear, ethereal solution through a dry filter paper, placed in a well-covered funnel, then introduce 75 ccm of the filtrate into a small flask, and condense it to about one third by distillation.

After cooling, transfer the residual solution into a separator, wash the flask successively thrice with 5 ccm each of ether, then once with 10 ccm of diluted hydrochloric acid (1 : 50), unite the washings with the solution in the separator, and shake it vigorously for 2 minutes. After separation, introduce the clear acid solution into a second separator, shake the remaining ethereal solution successively twice with 5 ccm each of diluted hydrochloric acid (1 : 50), reduce the combined acid solution alkaline with sodium carbonate solution, shake it with 5 ccm of chloroform for 2 minutes and allow it to separate.

Transfer the clear chloroform solution into a third separator, shake the remaining alkaline solution successively thrice with 5 ccm each of chloroform, and combine these chloroform solutions in the third separator.

Add 10 ccm of hundredth-normal hydrochloric acid volumetric solution and then ether, sufficient to make the chloroform-ether solution float on the hydrochloric acid solution, shake strongly for 2 minutes, and filter the lower, clear, acid solution through a moistened small filter paper into a flask of about 200 ccm capacity. Shake the remaining chloroform-ether solution successively thrice with 10 ccm each of water, filter the aqueous layer through the same filter paper, wash it with water, then dilute the combined filtrate with water to make it measure about 100 ccm, and add ether, until it makes a layer of about 1 cm in height.

Add to the mixture 10 drops of iodeosin solution, and titrate it with hundredth-normal potassium hydroxide volumetric solution, strongly shaking on the addition of each drop; not more than 5,2 ccm of the volumetric solution should be required to produce a light red color in the lower aqueous solution.

Evaporate the chloroform solution, obtained by the same method as above; the residue should respond to the reactions of atropine under the article of *Atropinum sulfuricum.*

Preserve it with care.

Miximum dose at a time: 0,15 g.
Maximum dose for a day: 0,5 g.

O FOLIA SENNAE.

Senna Leaves.

(a) *Tinnevelly Senna.*

The dried leaflets of Cassia angustifolia *Vahl.*

The leaves are greenish-colored, lanceolate, somewhat unequal at the base, 2,5–5 cm long, shortly petiolate, pointed at the apex, and sparsely hairy.

The primary veins, which are prominent on both sides, run upwards winding along the margin. The epidermis of both surfaces consists of polygonal, flat-walled cells, and is provided with unicellular thick-walled hairs. Beneath the epidermis of both surfaces lies 1 layer of palisade cells, and the middle layer of the mesophyll is composed of round cells.

(b) *Alexandria Senna.*

The dried leaflets of Cassia acutifolia *Del.*

The leaves are greenish-colored and smaller than *Tinnevelly Senna,* being 1–3 cm long. In other respects the leaves are the same to the *Tinnevelly Senna.*

Senna Leaves should be free from petioles, pods and leaves of different plants.

Senna Leaves, which have become brownish or yellowish in color, should not be used.

FOLIA STRAMONII.

Stramonium Leaves.

The leaves of Datura Stramonium *L.* and Datura Tatura *L.*, collected when the plants are in flower, and dried.

The petiole is long, cylindrical, and narrowly grooved on the upper surface. The laminae are dark green in color, at most 2 dm long, broadly ovate, or narrowly ovate, or lanceolate, pointed at the apex, and wedge-shaped at the base; the margins irregularly or doubly sinuate-dentate; nearly smooth; 3–5 stout lateral veinlets on both side of the midrib. The oxalate cells contain rosette aggregates.

Stramonium Leaves have a slightly bitter and saline taste.

Preserve it with care.

Maximum dose at a time: 0,2 g.
Maximum dose for a day: 0,6 g.

FOLIA UVAE URSI.

Uva Ursi Leaves.

The dried leaves of Arctostaphylos Uva ursi *Spreng.*

Uva Ursi Leaves are spatulate, rarely obovate, 1,2–3 cm in length, margins entire, and provided with petioles, 3–5 mm long. The laminae thick, brittle, and dark green on the upper side. The epidermis of the upper and under surfaces consists of cells, which appear polygonal and straight-walled, when seen from above. The stomata are broadly oval. The midrib is hardly prominent on the under surface, and shows in the transversal section single and sandy crystals of oxalate in the cells, which accompany the vascular bundles. The mesophyll is free from oxalate crystals. The leaves have an astringent taste.

Boil 1 g of the leaves with 50 ccm of water for 2–3 minutes, and then filter; the filtrate produces a violet precipitate on the addition of a small piece of ferrous sulphate.

O FORMALINUM. *Formaldehydum solutum.*

Formaline. *Solution of Formaldehyde.*

A clear, colorless or nearly colorless liquid, having a pungent odor, and showing a neutral or slightly acid reaction ; miscible in all proportions with water, and with alcohol, but not miscible with ether.

Formaline contains about 35 per cent. of pure formaldehyde ($CH_2O = 30,02$).

5 ccm of Formaline leaves, on evaporation on a water bath, a white, amorphous substance, which is insoluble in water.

Evaporate Formaline, after making it strongly alkaline with ammonia water, to dryness on a water bath ; a white, crystalline substance remains, which is easily soluble in water.

Mix it with ammonia water, and add silver nitrate solution; metallic silver is slowly deposited. On heating Formaline with Fehling's solution, a red precipitate is produced.

Formaline, diluted with 4 times its volume of water, should not be affected by silver nitrate solution, barium nitrate solution, or by hydrogen sulphide water, nor should it yield, after being supersaturated with ammonia water, any precipitate with ammonium sulphide.

Mix 1 ccm of Formaline with 1 drop of normal potassium hydroxide solution; the solution should show no acid reaction.

A white mass, obtained by the evaporation of Formaline, should leave, on incineration, not more than 0,05 per cent. of solid residue.

A mixture of 1 ccm of Formaline and 10 ccm of tenth-normal iodine volumetric solution, almost decolorized with sodium hydroxide solution, should produce, on warming, no yellow, crystalline precipitate.

Add to 3 ccm of Formaline 50 ccm of sodium sulphite solution, obtained by freshly dissolving 25 g of the crystallized salt in water to make the solution measure 100 ccm, and 1 drop of phenolphthalein solution, and titrate it with normal hydrochloric acid volumetric solution. Then add to 12 ccm of the sodium sulphite solution 80 ccm of water and 1 drop of phenolphthalein solution, and titrate it with normal hydrochloric acid volumetric solution. The quantity of the volumetric solution, obtained by subtracting the quantity required in the latter case from that required in the former case, should be at least 37,8 ccm.

Preserve it with care, protected from light.

FRUCTUS ANISI.

Anise Fruit.

The fruit of Pimpinella Anisum *L.*

Attaining 5 mm in length, broadly ovoid, brownish, and covered with short, unicellular hairs. The oil-tubes between 10 slender ribs are not recognizable externally, while the 2 broad oil-tubes on the commissural surface of mericarps are very prominent. The transverse section of the mericarp exhibits 4–6 small oil-tubes between each 2 ribs.

It should have strong aromatic odor and taste, resembling anethol.

FRUCTUS AURANTII IMMATURI.

Orange Pease.

The dried, unripe fruit of Citrus Aurantium *L. subsp.* amara *Engl.*

Orange Pease is 5–15 mm in diameter, externally greenish or brownish, coarsely granular ; the transverse section showing numerous oil-glands near the outer surface. It is divided internally into 8–10, rarely 12 loculi, the white tissue of its outer wall protruding into the loculi.

It has an aromatic odor and an aromatic, bitter taste.

FRUCTUS CAPSICI.

Capsicum.

The dried, ripe fruit of Capsicum annuum *L.* and its varieties.

Capsicum is red or reddish-brown, oblong conical or fusiform, smooth, shining, occasionally curved, attaining 1 cm in diameter and 10 cm in length, sometimes with calyx and peduncle. The interior of the pericarp is hollow and usually divided into 2 loculi, which contain numerous, yellow, flat seeds, attaining 5 mm in diameter.

Cross section of the pericarp shows, under the microscope, an exterior epidermis which is covered with thick cuticle, followod by collenchyma, a layer of thin-walled parenchyma, whose innermost cells attain often to a considerable size, and an interior epidermis consisting of as well thin-walled as sclerenchymatous cells. The cells near the outer side of the pericarp contains an abuntant, yellowish-red chromoplastids. The epidermal cells of the seed-coat are thin-walled on the outside, and irregularly thick-walled on other sides.

Taste sharp and burning.

FRUCTUS CARDAMOMI.

Cardamom.

The dried, nearly ripe capsule of Elettaria cardamomum *White et Maton*.

Cardamom is pale yellowish, 1–2 cm in length, about 1 cm in diameter, longitudinally striated, having 3 blunt ridges. It is crowned with a small beak, 1–2 mm long, and internally divided into 3 loculi, each of which contains about 7 seeds, longitudinally arranged.

The seeds are brown, irregularly angular, wrinkled, and enclosed in a colorless, thin aril.

The peel is tasteless, while the seed contains in the testa a secretion having strongly aromatic taste and odor.

FRUCTUS COLOCYNTHIDIS.

Colocynth.

The dried fruit of Citrullus Colocynthis *Schard.*, divested of the hard peel.

Colocynth is globular in shape. The white pulp consists of a light, spongy, large-celled tissue, which contains air and is traversed by vascular bundles. The compressed, ovoid seeds are enclosed in the pulp.

It is odorless, but has a highly bitter taste.

It should be used after the removal of the seeds.

Preserve it with care.

FRUCTUS CUBEBAE.

Cubeb.

The dried, full-grown, unripe fruit of Piper Cubeba *L. fil.*

Nearly globular, not exceeding 5 mm in diameter, externally dark brown in color, reticulately wrinkled; the summit with 3–5 stigmatic lobes; the base terminating in a peduncle, 4–10 mm long and not exceeding 1 mm in diameter.

The fracture of the pericarp shows a hard, somewhat light-colored internal layer, which consists of 2–3 rows of somewhat thick-walled, sclerenchymatous cells, which are slightly radially elongated. The middle layer of the pericarp contains secretory cells, but no sclerenchymatous cells. Just beneath the epidermis, are seen 1–2 layers of sclernchymatous cells. Somewhat developed seed is attached at the bottom of the pericarp.

It has an aromatic odor, and an aromatic, bitter taste.

1 drop of sulphuric acid, poured on a piece of Cubeb, conspicuously assumes a red color.

FRUCTUS FOENICULI.

Fennel Fruit.

The fruit of Foeniculum vulgare *Mill.*

Narrowly cylindrical, greenish-yellow, hairless, 7–10 mm long, and 3–4 mm broad. Among the 10 primary ribs, marginal ones, lying closely with one another, are more prominent than the rest; each 1 large oil-tube between the ribs, and 2 on the commissural surface of mericarps.

It should have characteristic, strongly aromatic odor and taste.

FRUCTUS JUNIPERI.

Juniper Fruit.

The dried fruit of Juniperus communis *L.*

Juniper Fruit is globular, attaining 9 mm in diameter, dark brown, occasionally covered with a blue bloom, bearing at the base 1 to about 6 3-merous whorls of scales, and showing 3 sutures at the apex. The pulp is light brownish, and encloses 3 hard seeds.

It has a strongly aromatic, sweet taste.

FRUCTUS PIPERIS NIGRI.

Pepper.

The dried fruit of Piper nigrum *L.*, collected before complete maturity.

Pepper is globular, without peduncle, and about 5 mm in diameter. The pericarp is thin, blackish-brown, coarsely wrinkled, with 1 seed adhering to it. The seed consists chiefly of perisperm, which is hollow at the centre, horny, brownish-yellow, and internally white and mealy.

It has a strong aromatic odor and a strong aromatic, burning taste.

On incineration, it should leave not more than 5 per cent. of solid residue.

FRUCTUS VANILLAE.

Vanilla.

The full-grown, unripe capsule of Vanilla planifolia *Andr.*, cured, and dried.

Vanilla is 20–25 cm long, not exceeding 1 cm in breadth, externally blackish-brown, glossy, and often covered with crystals of vanillin. The fruit is unilocular, and encloses numerous seeds, not exceeding 0,25 mm in diameter and surrounded by a thin, oily liquid.

It should have pleasant, strongly aromatic odor and taste.

GALBANUM.

Galbanum.

The gum-resin obtained from Ferula galbaniflua *Boiss. et Buhse.* and other species of Ferula.

In tears, either separated or agglutinated; brownish, yellow, cr often faintly greenish; sometimes in brown, easily softening, homogeneous mass; never white, even in fresh fractures.

Boil finely powdered Galbanum with fuming hydrochloric acid for 15 minutes, filter through a moistened filter paper, and carefully oversaturate the clear filtrate with ammonia water; the resulting solution shows a blue fluorescence in reflected light.

When completly extracted with boiling alcohol, Galbanum should leave not more than 50 per cent. of dried residue.

On incineration, it should leave not more than 10 per cent. of solid residue.

It should be pulverized at as low a temperature as possible, after drying in an exsiccator.

Odor aromatic; taste aromatic, but not sharp.

GALLAE.

Gobaishi. *Japanese Galls.*

Vesicular excrescences produced on the leaves of Rhus javanica *L.* by the punctures of Schlechtendalia chinensis *J. Bell.*

The galls are of irregular form, branched, lobed, and 1–6 cm in diameter. The wall is hard, brittle, horny, of a grayish-brown color, and covered with a grayish-white, velvety down, consisting of silky hairs. The galls are internally hollow, often containing grayish-white, pulverulent matter and dead aphides.

They have a strongly astringent taste.

GELATINA ALBA.

Gelatin.

Colorless or almost colorless, translucent, usually thin sheets, odorless and tasteless, and having a glassy lustre.

Gelatin is insoluble in cold water, but swells conspicuously when immersed in it, and readily dissolves on warming, forming a sticky, neutral, clear or opalescent solution, which, on cooling, solidifies even in the dilution 1 : 100. Gelatin is insoluble in alcohol, or in ether.

Even a highly diluted, aqueous solution of Gelatin yields, with tannic acid solution, a white, flocculent precipitate.

Dissolve 5 g of Gelatin in 30 ccm of water in about 150 ccm flask by warming on a water bath, add 5 g of phosphoric acid, close the flask with a cork-stopper, to which a wet potassium iodate and starch paper is attached, and heat it on a water bath under frequent agitation; the paper should not be turned blue within 15 minutes.

On incineration, 5 g of Gelatin should leave not more than 0,1 g of solid residue. Dissolve the residue in 2 ccm of diluted hydrochloric acid, and then oversaturate it with ammonia water; it should produce no blue color.

O GLYCERINUM.

Glycerin.

$C_3H_8O_3 = 92{,}08$

A clear, colorless, syrupy liquid, odorless, and having a sweet taste; soluble in all proportions in water, alcohol, and in spirit of ether, but insoluble in ether, chloroform, or in fixed oils. Specific gravity: 1,225–1,235.

Mix 1 ccm of Glycerin with 3 ccm of stannous chloride solution; the mixture should acquire no dark color within 1 hour.

1 part of Glycerin, diluted with 5 parts of water, should react neutral, and should not be affected by hydrogen sulphide water, barium nitrate solution, ammonium oxalate solution, or by calcium chloride solution. The same dilution should produce no more than an opalescence with silver nitrate solution, and, after the addition of 2–3 drops of hydrochloric acid, should immediately produce no blue color with potassium ferrocyanide solution.

Heat 5 ccm of Glycerin, and then ignite; it should burn completely, and leave only a black stain, which, on further incineration, should leave no weighable solid residue.

On warming a mixture of 1 ccm each of Glycerin and ammonia water at 60° on a water bath, it should produce no yellow color.

Immediately add 3 drops of silver nitrate solution to the warm mixture, and allow it to stand; it should neither be colored nor produce any brownish-black precipitate within 5 minutes.

Warm 1 ccm of Glycerin with 1 ccm of sodium hydroxide solution; the mixture should not be colored, and should it evolve neither ammoniacal nor glutinous odor.

Gently warm 1 ccm of Glycerin with an equal volume of diluted sulphuric acid; no disagreeable, rancid odor should be evolved.

Add to 50 ccm of Glycerin 50 ccm of water, freshly boiled and cooled, and 10 ccm of tenth-normal potassium hydroxide volumetric solution, warm the mixture for 15 minutes on a water bath, and, when cooled, add 1 ccm of phenolphthalein solution; the resulting mixture should require for decolorization at least 4 ccm of tenth-normal hydrochloric acid volumetric solution.

GOSSYPIUM ACIDI BORICI.

Boracic Cotton.

Boric Acid	11 *p's.*
Distilled Water	187 *pts.*
Purified Cotton	90 *pts.*

Dissolve boric acid in distilled water, soak the purified cotton in the solution, and then, after 2 hours, press until the cotton weighs 270 parts. Spread the cotton, and dry it to make the product weigh 100 parts.

Boracic cotton contains about 10 per cent. of boric acid.

Preserve it well-closed.

GOSSYPIUM DEPURATUM.

Purified Cotton.

The white hairs of the seed of several species of Gossypium, deprived of fatty matter.

Purified Cotton should contain, if any, not more than a very small quantity of cotton flocks and pieces of brown seed-coat.

Purified Cotton, moistened with water, should not affect the litmus papers.

An infusion, prepared by extracting 1 part of Purified cotton with 10 parts of boiling water, should produce no more than an opalescence with silver nitrate solution, barium nitrate solution, or with ammonium oxalate solution.

A mixture of 10 ccm of the same infusion, 2–3 drops of sulphuric acid and 3 drops of potassium permanganate solution should not lose its color within 2–3 minutes.

When thrown on the surface of water, it should readily absorb the latter and sink immediately.

On incineration, it should leave not more than 0,3 per cent. of solid residue.

GOSSYPIUM HYDRARGYRI BICHLORATI.

Sublimate Cotton.

Mercuric Chloride	1 *pt.*
Potassium Chloride	1 *pt.*
Distilled Water	750 *pts.*
Purified Cotton	500 *pts.*

Dissolve mercuric chloride and potassium chloride in distilled water, faintly color the solution with scarlet or fuchsin S, then soak the cotton in it, express, spread, and finally dry it by gentle heat.

Sublimate Cotton contains about 0,2 per cent. of mercuric chloride.

Preserve it well-closed and protected from light.

GOSSYPIUM JODOFORMIATUM.

Iodoform Cotton.

Iodoform	1 *pt.*
Liquid Paraffin	1 *pt.*
Ether	18 *pts.*
Purified Cotton	18 *pts.*

Dissolve iodoform in a mixture of liquid paraffin and ether, soak the cotton in the resulting solution, press it gently, and, when it has been colored uniformly yellow, dry at ordinary temperature in a dark place.

Iodoform cotton contains about 5 per cent. of iodoform.

Preserve it well-closed and protected from light.

GOSSYPIUM SALICYLATUM.

Salicylic Cotton.

Salicylic Acid	11 *pts.*
Glycerin	20 *pts.*
Alcohol	140 *pts.*
Distilled Water	140 *pts.*
Purified Cotton	200 *pts.*

Dissolve salicylic acid in a mixture of glycerin, alcohol and distilled water, soak the cotton in the resulting solution, express, spread, and then dry it by gentle heat.

Salicylic Cotton contains about 5 per cent. of salicylic acid.

Preserve it well-closed.

GOSSYPIUM STYPTICUM.

Styptic Cotton.

Solution of Ferric Chloride	25 *pts.*
Alcohol	15 *pts.*
Glycerin	1 *pt.*

Mix them together, soak purified cotton in the mixture, press, unravel, and then dry it protected from light.

Preserve it in well-stoppered bottles, protected from light.

GUAJACOLUM.

Guaiacol.

$C_7H_8O_2 = 124,1$

A clear, colorless, strongly refractive, oily liquid, or colorless crystals, having a characteristic, aromatic odor; soluble in about 80 parts of water, clearly miscible with alcohol, ether, carbon disulphide, and with glycerin. Specific gravity : 1,120-1,143. Boiling point : about 205°. Melting point of the solid guaiacol: about 28°.

An aqueous solution of Guaiacol acquires, with diluted ferric chloride solution, a dark blue color, quickly changing to reddish-brown, while its alcoholic solution acquires a green color, immediately changing to blue, and finally to a brown color.

1 ccm of Guaiacol should mix clearly with 2 ccm of sodium hydroxide solution, and on diluting the mixture with 30 ccm of water, it should remain clear and nearly colorless.

A mixture of 1 volume of Guaiacol and 2 volumes of potassium hydroxide solution should solidify, after a short time, to a white, crystalline mass.

Preserve it with care, protected from light.

Maximum dose at a time: 0,3 g.
Maximum dose for a day: 1 g.

O GUAJACOLUM CARBONICUM.

Guaiacol Carbonate.

$(C_7H_7O)_2CO_3 = 274,19$

A white, crystalline powder, almost odorless and tasteless; insoluble in water, slightly soluble in alcohol, and in ether, but readily soluble in boiling alcohol, chloroform, and in benzene. Melting point: about 88°.

Dissolve 0,2 g of Guaiacol Carbonate, by the aid of gentle heat, in a mixture of 5 ccm each of alcohol and potassium hydroxide solution, warm the resulting solution on a water bath, and, when alcohol has evaporated off, shake the residue with diluted sulphuric acid and ether; the ethereal solution, upon evaporation of ether, should leave a residue, which has the odor of guaiacol, and, when dissolved in alcohol, produces a green color with diluted ferric chloride solution.

Mix 0,2 g of Guaiacol Carbonate with 10 ccm of the clear solution, obtained by dissolving 0,5 g of potassium hydroxide in 10 ccm of absolute alcohol, and boil the mixture for a few minutes; it produces a crystalline precipitate, which, after washing with absolute alcohol, evolves carbon dioxide on the addition of hydrochloric acid.

A solution, obtained by dissolving 0,5 g of Guaiacol Carbonate in 10 ccm of boiling alcohol, should be neutral to litmus papers, and should acquire neither blue nor green color with 1 drop of ferric chloride solution.

Shake 1 g of Guaiacol Carbonate with 10 ccm of water, and filter; the filtrate, when acidified with nitric acid, should not be affected by silver nitrate solution.

0,1 g of Guaiacol Carbonate should dissolve almost colorlessly in 1 ccm of sulphuric acid.

On incineration, it should leave not more than 0,1 per cent. of solid residue.

O GUMMI ARABICUM.

Gum Arabic.

A gummy exudation, solidified in the air, from the stem and branches of Acacia Senegal *Willd.*, and of several other species of Acacia, growing in Africa.

More or less spheroidal, colorless or slightly yellow-colored masses of various size; marked with cracks; very brittle and easily broken into conchylaceously angular, vitreous, sometimes faintly iridescent fragments.

1 part of Gum Arabic is soluble, slowly but completely, in 2 parts of water, forming a colorless or light yellowish, odorless mucilage, with an insipid, viscid taste and a faintly acid reaction. The mucilage is clearly miscible with lead acetate solution, but yields a precipitate with lead subacetate solution, even when the solution is so diluted that 1 part

of gum is contained in 50000 parts. When mixed with alcohol or ferric chloride solution, the same mucilage solidifies to a gelatinous mass.

Its aqueous solution (1 : 3) should not acquire, with ferric chloride solution, a dark green color.

Boil 10 ccm of its aqueous solution (1 : 10), and, after cooling, add 1 drop of iodine solution; it should not be colored blue or purplish-red.

On incineration, it should leave not more than 4 per cent. of solid residue.

GUTTAPERCHA.

Gutta-Percha.

The dried latex from various plants, belonging to Payena, Palaquium and other genera of the family Sapotaceae.

Brownish-gray, brownish, reddish-yellow or whitish masses, becoming soft and pliable, when immersed in boiling water, and solidifying again on cooling.

It should be soluble in warm chloroform, leaving not more than a minute quantity of residue.

GUTTAPERCHA DEPURATA.

Purified Gutta-Percha.

Sticks or thin plates, white or yellowish-white in color.

Purified Gutta-Percha becomes plastic at 65–70°, and melts at 100°.

It should be completely soluble in chloroform.

HERBA ABSINTHII.

Wormwood.

The wild or cultivated herbs of Artemisia Absinthium *L.*, collected in the flowering season, and dried.

The basal leaves are long petiolate, and pinnately 3–cleft with narrowly lanceolate lobes. The lower cauline leaves are pinnately 1– or 2–cleft, the upper ones 1–cleft. The inflorescence is a panicle and springs mostly singly from the axil of a lanceolate or spatulate bract. The flower-heads are nearly spherical, and consist exclusively of tubular florets, which are about 3 mm broad. The leaves and the stems are, especially in the wild plant, covered with dull gray to silvery gray, silky hairs.

Wormwood has an aromatic odor, and an aromatic, exceedingly bitter taste.

HERBA CANNABIS INDICAE.

Indian Hemp.

The dried twigs, or warty, stiff-haired leaves and undeveloped fruits from the pistillate plants of Cannabis sativa *L.*, collected at the commencement of the ripening of the fruits in the northern parts of India.

The leaflets are linear-lanceolate, coarsely serrate, broken or adhering into a mass together with withered spikes.

Under the microscope, it shows cystoliths and oil-glands, besides abundant hairs ; in the mesophyll, cells containing rosette aggregates of oxalate.

Odor characteristic, sharp and narcotic ; taste slight.

The drug should contain, if any, not more than a small quantity of pieces of lignified stems and ovoid, angular fruits, attaining a length of 5 mm.

Preserve it with care.

HERBA LOBELIAE.

Lobelia.

The dried flowering herbs of Lobelia inflata *L.*

The stem is hairy, especially on the edges, and bears ovate or oblong leaves, which are sparsely hairy, pointed at the apex and irregularly toothed at the margin. The corolla whitish or pale bluish in color, 2-lipped. The capsule is obovoid, thin-walled, 10-ribbed, crowned with calyx, 2-locular, and contains numerous, brown, reticulate seeds, about 0,5–0,7 mm in length.

Lobelia has a sharp and acrid taste.

Preserve it with care.

Maximum dose at a time: 0,1 g.
Maximum dose for a day: 0,3 g.

HERBA SWERTIAE.

Toyaku. *Japanese Chiretta.*

The herbs of Swertia japonica *Makino,* and Swertia chinensis *Hemsl.*, collected when in flower, and dried.

Stem 4-edged, 1–2 mm in diameter, and about 20 cm in length. Leaves opposite, linear or linear-lanceolate, sessile, entire, 1–3 mm in breadth, and 2–4 cm in length. Flowers with long peduncle; corolla white or violet in color, which gradually fades, deeply 5-parted, internally with a brush-like honey-gland at the bottom.

Odor faint; taste exceedingly bitter.

HEXAMETHYLENTETRAMINUM.

Hexamethylentetramine.

$C_6H_{12}N_4 = 140,17$

Colorless crystals, or a white, crystalline powder; odorless, and having a sweet taste, followed by a sense of slight bitterness; soluble in 1,5 parts of water, showing a slightly alkaline reaction, soluble in about 9 parts of alcohol, but almost insoluble in ether. On heating, it sublimes without melting.

Heat an aqueous solution (1 : 10) of Hexamethylentetramine with diluted sulphuric acid; it emits an odor of formaldehyde, and, on the subsequent addition of an excess of sodium hydroxide solution, it evolves ammonia.

An aqueous solution (1 : 5) of Hexamethylentetramine produces, with an excess of nitric acid, a precipitate which disappears on adding water; the same solution produces a white precipitate with mercuric chloride or tannic acid solution.

An aqueous solution (1 : 100) of Hexamethylentetramine, acidulated with nitric acid, should produce no more than an opalescence with silver nitrate solution, or with barium nitrate solution.

Boil an aqueous solution (1 : 20) of Hexamethylentetramine with Nessler's reagent; neither coloration nor turbidity should be produced.

An aqueous solution (1 : 10) of Hexamethylentetramine should not be affected by hydrogen sulphide water.

On incineration, it should leave not more than 0,1 per cent. of solid residue.

HIRUDINES.

Leeches.

Leech, Hirudo nipponica *Whit.*, weighs usually 0,25–0,35 g, mostly yellowish-green in color, the ventral surface being paler than the dorsal surface, and bearing 5 yellow longitudinal stripes, narrowing in breadth or interrupted at every 5 joints, of which the middle one being usually broader and more conspicuous. Yellow stripes are usually found also on both flanks.

HOMATROPINUM HYDROBROMICUM.

Homatropine Hydrobromide.

$C_{16}H_{21}NO_3.HBr = 356,19$

A white, odorless, crystalline powder ; readily soluble in water, somewhat difficultly soluble in alcohol, and almost insoluble in chloroform.

Heat 0,01 g of Homatropine Hydrobromide in a small glass tube until it evolves a white fume, then add 1,5 ccm of sulphuric acid, heat again until it acquires a brown color, and add at once 2 ccm of water ; it evolves a characteristic, agreeable odor, and, on the subsequent addition of a small crystal of potassium permanganate, it evolves an odor resembling benzaldehyde.

An aqueous solution (1 : 20) of the salt produces a white precipitate with mercuric chloride solution, and with potassium hydroxide solution, a brown precipitate with iodine solution, and a light yellow precipitate with silver nitrate solution. The white precipitate, produced by potassium hydroxide solution, is soluble in an excess of the reagent.

Evaporate 0,01 g of the salt with 5 drops of fuming nitric acid to dryness in a small porcelain dish on a water bath ; the nearly colorless residue, after cooling, should produce a reddish-yellow but not a violet color with alcoholic potassium hydroxide solution.

An aqueous solution (1:20) of the salt should be neutral to litmus papers, and should be precipitated neither by tannic acid solution, nor, after the acidulation with hydrochloric acid, by platinum chloride solution.

0,1 g of the salt should dissolve, almost without coloration, in 2 ccm of sulphuric acid.

On incineration, the salt should leave not more than 0,1 per cent. of solid residue.

Preserve it with special care.

Maximum dose at a time: 0,001 g.
Maximum dose for a day: 0,003 g.

HYDRARGYRUM.

Mercury.

$Hg = 200,6$

A silver-white and liquid metal. Specific gravity: 13,56.

Mercury should present a bright surface, and produce no change even on shaking in contact with air.

It should dissolve completely in nitric acid.

It should volatilize completely when heated in a glass tube.

It should have no moisture.

○ HYDRARGYRUM BICHLORATUM.

Mercuric Chloride. *Corrosive Sublimate.*

$HgCl_2 = 271,52$

White, transparent, heavy, radiated, crystalline masses, or acicular crystals, or a crystalline powder; soluble in 16 parts of water, 3 parts of boiling water, 3 parts of alcohol, and in about 17 parts of ether.

An aqueous solution of Mercuric Chloride shows an acid reaction, but becomes neutral upon the addition of sodium chloride.

An aqueous solution of the salt yields, with lime water, a reddish precipitate, and, with silver nitrate solution, a white precipitate, insoluble in diluted nitric acid.

When heated in a glass tube, 0,5 g of the salt should melt at first and then volatilize almost completely.

Warm an aqueous solution of the salt, supersaturate it with hydrogen sulphide to completely precipitate the mercury, and then filter ; the filtrate should leave, if any, not more than 0,25 per cent. of residue on evaporation and ignition. Shake the precipitate with ammonia water, and filter ; the filtrate, when acidified with diluted hydrochloric acid, should acquire no yellow color.

An aqueous solution (1 : 20) of the salt should produce no more than an opalescence with barium chloride solution.

Preserve it with special care.

Maximum dose at a time: 0,02 g.
Maximum dose for a day: 0,06 g.

HYDRARGYRUM BIJODATUM.

Red Mercuric Iodide.

$HgJ_2 = 454,44$

A scarlet-red powder, which, on heating, first becomes yellow, then melts, and, on further heating, volatilizes completely, forming a yellow, crystalline sublimate which becomes red on cooling; almost insoluble in water, soluble in about 250 parts of alcohol, and in about 40 parts of boiling alcohol, easily soluble in potassium iodide solution.

Heat the salt with sodium hydroxide solution and a small quantity of milk sugar; metallic mercury is precipitated.

Heat the salt with manganese dioxide and sulphuric acid; a violet vapor is evolved.

A cold, alcoholic solution of the salt should be colorless, nor should it redden a blue litmus paper.

Shake 1 part of the salt with 20 parts of water, and filter; the filtrate should acquire no more than a faint color with hydrogen sulphide water, nor give any more than a slight opalescence with silver nitrate solution.

On heating in a glass tube, 0,5 g of the salt should volatilize almost completely.

Preserve it with special care, protected from light.

Maximum dose at a time: 0,02 g.
Maximum dose for a day: 0,06 g.

O HYDRARGYRUM CHLORATUM. *Calomelas.*

Mercurous Chloride. *Calomel.*

$Hg_2Cl_2=472,12$

A yellowish-white, heavy, impalpable powder, prepared from sublimed mercurous chloride by levigation and elutriation; showing crystals, when viewed under the microscope having magnification power of 100 diameters. It decomposes on exposure to the light, and is insoluble in water, or in alcohol.

Mercurous Chloride is blackened by the addition of ammonia water, and the filtrate, when supersaturated with nitric acid, yields a white precipitate with silver nitrate solution.

When heated in a glass tube, the salt should completely volatilize without fusing. Heat 1 g of the salt with sodium hydroxide solution; no ammonia should be evolved.

Shake 1 g of the salt with 10 ccm of diluted alcohol, and filter; the filtrate should not be affected by hydrogen sulphide water, or by silver nitrate solution.

Preserve it with care, protected from light.

HYDRARGYRUM CHLORATUM VAPORE PARATUM

Mercurous Chloride prepared by Steam.

$Hg_2Cl_2=472,12$

A white powder, prepared by suddenly cooling the vapor of mercurous chloride, showing isolated micro-crystals, when viewed under the microscope with 100 diameters magnification. It decomposes by exposure to the light, becomes yellowish on being strongly triturated, and is insoluble in water, or in alcohol.

It should respond to the tests for identity and purity under *Hydrargyrum chloratum.*

Preserve it with care, protected from light.

HYDRARGYRUM JODATUM.

Yellow Mercurous Iodide.

$Hg_2J_2=655,04$

A yellow or greenish-yellow, amorphous, heavy powder; wholly insoluble in alcohol, or in ether, and almost insoluble in water.

When shaken with an excess of potassium iodide solution, Yellow Mercurous Iodide becomes gray owing to the separation of metallic mercury. On heating the salt with manganese dioxide and sulphuric acid, a violet vapor is evolved.

When heated in a glass tube, 0,5 g of the salt should volatilize almost completely.

Shake 1 part of the salt with 20 parts of alcohol, and filter; the filtrate should acquire no more than a faint color with hydrogen sulphide water.

Preserve it with care, protected from light.

Maximum dose at a time: 0,02 g.
Maximum dose for a day: 0,06 g.

HYDRARGYRUM OLEICUM.

Mercuric Oleate.

Mercuric Chloride	32 *pts.*
Medicinal Soap	64 *pts.*
Oleic Acid	3,6 *pts.*
Distilled Water	672 *pts.*

Dissolve mercuric chloride in 320 parts of boiling distilled water. Triturate medicinal soap with oleic acid, and dissolve the mixture in 352 parts of distilled water.

Mix these solutions, boil for 10 minutes, then allow mercuric oleate to subside, and decant the supernatant liquid. Wash the precipitate several times with boiling water, until the washing hardly gives a turbidity with silver nitrate solution, and finally dry it on a water bath.

Mercuric Oleate is a light grayish-yellow substance, of an ointment-like consistence, and having a somewhat saponaceous odor.

Preserve it with care, protected from light.

HYDRARGYRUM OXYDATUM FLAVUM.

Yellow Mercuric Oxide.

$HgO = 216,6$

Mercuric Chloride	2 *pts.*
Sodium Hydroxide Solution	6 *pts.*
Distilled Water	50 *pts.*

Dissolve mercuric chloride in 40 parts of warm distilled water, and cool the solution to about 30°. Gradually pour it, with stirring, into a mixture of sodium hydroxide solution and 10 parts of distilled water, and set aside for about 1 hour at about 30°, with frequent stirring and protected from light. Wash the precipitate completely with distilled water of about 30°, until the washing produces no more than an opalescence with silver nitrate solution, and dry it at about 30°, protected from light.

A yellow, amorphous, heavy powder; almost completely insoluble in water, but soluble in diluted nitric acid, producing a clear or nearly clear solution, and soluble in diluted hydrochloric acid, producing a clear or silghtly turbid solution.

When heated in a glass tube, Yellow Mercuric Oxide volatilizes with the separation of metallic mercury.

Warm 0,5 g of Yellow Mercuric Oxide, under frequent agitation, with 10 ccm of oxalic acid solution (1 : 10) on a water bath for 2 hours; it should be gradually converted into a white, crystalline powder.

Shake it with water, and filter; the filtrate should not be affected by hydrogen sulphide water.

An aqueous solution (1 : 50) of Yellow Mercuric Oxide, obtained by the aid of nitric acid, should produce no more than an opalescence with silver nitrate solution.

On heating strongly, it should leave not more than 0,1 per cent. of solid residue.

Preserve it with special care, protected from light.

HYDRARGYRUM OXYDATUM RUBRUM.

Red Mercuric Oxide. *Red Precipitate.*

$HgO = 216,6$

A yellowish-red, fine, crystalline powder; almost insoluble in water, soluble in diluted nitric acid, producing a clear or almost clear solution, and also in diluted hydrochloric acid, producing a clear or slightly turbid solution.

When heated in a glass tube, Red Mercuric Oxide volatilizes with the separation of metallic mercury.

Warm 0,5 g of Red Mercuric Oxide, under frequent agitation, with

10 ccm of oxalic acid solution (1:10) on a water bath; it should produce no change within 2 hours.

Shake 1 g of Red Mercuric Oxide with 2 ccm of water, add 2 ccm of sulphuric acid, cool the mixture, and carefully pour upon it 1 ccm of ferrous sulphate solution, so as to make 2 layers of liquids; no brownish zone should appear at the line of contact.

A solution of 1 g of Red Mercuric Oxide in 20 ccm of diluted hydrochloric acid should be not more than slightly turbid.

An aqueous solution (1:50) of Red Mercuric Oxide, obtained by the aid of nitric acid, should produce no more than an opalescence with silver nitrate solution.

On heating strongly, it should leave not more than 0,1 per cent. of solid residue.

Preserve it with special care, protected from light.

HYDRARGYRUM PRAECIPITATUM ALBUM.

Ammoniated Mercury. *White Precipitate.*

Mercuric Chloride	2 *pts.*
Distilled Water	58 *pts.*
Ammonia Water	*a suitable quantity.*

Dissolve mercuric chloride in 40 parts of warm distilled water, filter the solution after cooling, and gradually add to the filtrate, under stirring, about 3 parts of ammonia water, that the latter remains in a little excess. Collect the precipitate on a filter, and, when it has thoroughly drained, wash it with 18 parts of distilled water.

Dry the product between the sheets of filter paper at a temperature not exceeding 30°, protected from light.

White pieces, or a white, amorphous powder; almost insoluble in water, and in alcohol, but soluble in diluted hydrochloric acid, warm, diluted nitric acid, and in sodium thiosulphate solution.

When heated with sodium hydroxide solution, Ammoniated Mercury evolves ammonia, and turns yellow.

Pour 10 ccm of acetic acid on 0,2 g of powdered Ammoniated Mercury, set aside for about 10 minutes, with frequent agitation, and then gradually warm the mixture to about 30°; a clear solution should be produced.

On heating strongly in a glass tube, 0,5 g of Ammoniated Mercury should almost completely volatilize without fusion.

Preserve it with care, protected from light.

HYDRARGYRUM SALICYLICUM.

Mercuric Salicylate.

$HgC_7H_4O_3 = 336{,}67$

A white, amorphous powder, odorless and tasteless; almost insoluble in water, or in alcohol, but soluble in sodium hydroxide solution, sodium carbonate solution, and in warm sodium chloride solution.

Shake 0,1 g of Mercuric Salicylate with 5 ccm of water, and add ferric chloride solution; a violet color is produced.

On heating 0,1 g of the salt with a small piece of iodine in a test tube, red mercuric iodide is formed on the inner surface of the tube.

0,2 g of the salt should dissolve almost colorlessly and clearly in 2 ccm of sodium hydroxide solution.

It should not immediately redden a moistened blue litmus paper, and, on heating strongly in a porcelain crucible, it should volatilize almost completely.

Dissolve 0,3 g of the salt in a small quantity of diluted sodium hydroxide solution, just sufficient to dissolve it, slightly acidify the solution with diluted acetic acid, then add 25 ccm of tenth-normal iodine volumetric solution, and set aside for 3 hours at ordinary temperature, well-stoppered and with frequent shaking; not more than 8,6 ccm of tenth-normal sodium thiosulphate volumetric solution should be required to discharge the color of the mixture (Indicator: Starch solution).

Preserve it with special care.

Maximum dose at a time: 0,02 g.
Maximum dose for a day: 0,06 g.

HYDRARGYRUM SULFURATUM RUBRUM.

Mercuric Sulphide. *Cinnabar.*

$HgS = 232,66$

A scarlet-red, fine, heavy powder, without odor; permanent in the air; when heated, it first becomes dark and then volatilizes completely; insoluble in water, alcohol, diluted hydrochloric acid, or in diluted nitric acid, but soluble in boiling Aqua Regia.

A solution of Mercuric Sulphide in Aqua Regia, diluted with water, yields a white precipitate with barium nitrate solution, and a gray precipitate with stannous chloride solution.

Warm 0,5 g of Mercuric Sulphide with a mixture of 5 ccm each of sodium hydroxide solution and water, shake, and then filter; the colorless filtrate should produce any colored turbidity neither with a small quantity of lead acetate solution, nor by the supersaturation with hydrochloric acid.

On digesting with 5 ccm of diluted nitric acid for 1–2 minutes on a water bath, 1 g of Mercuric Sulphide should not change the color, nor the colorless filtrate, diluted with much water, should be colored by the supersaturation with hydrogen sulphide.

On heating strongly, it should leave not more than 0,1 per cent. of solid residue.

INFUSA.

Infusions.

Infusions are the liquids, obtained by pouring boiling water on drugs, generally finely comminuted, heating for 5 minutes, with frequent stirring, on a water bath, and finally straining by expression after cooling.

When the quantity of the drugs to be used is not directed in the prescription, use the liquid as to make 10 parts of expressed liquid for 1 part each of the drugs prescribed.

The quantity of powerful medicines should always be directed by the physicians.

INFUSUM SENNAE COMPOSITUM.

Compound Infusion of Senna.

Senna Leaves, *medium cut*	50 *pts.*
Boiling Water	450 *pts.*
Potassium and Sodium Tartrate	50 *pts.*
Sodium Carbonate	1 *pt.*
Manna	100 *pts.*
Alcohol	25 *pts.*

Pour boiling water upon senna leaves, and extract by heating for 5 minutes on a water bath. Strain after cooling, dissolve potassium and sodium tartrate, sodium carbonate and manna in the strained liquid, and add boiling water enough to make the whole weigh 475 parts.

Lastly add alcohol to the infusion, allow it to subside for 24 hours, and then decant the supernatant liquid.

O JODOFORMIUM.

Iodoform.

$CHJ_3 = 393,77$

Yellow, lustrous, fine laminae, or a yellow, crystalline powder; with a penetrating odor somewhat resembling that of saffron; unctuous to the touch; almost insoluble in water, soluble in about 80 parts of alcohol, 10 parts of boiling alcohol, and in about 8 parts of ether. Melting point: about 120°.

When heated in a glass tube, it emits a purple vapor.

Shake 1 part of Iodoform with 10 parts of water for 1 minute, and filter; the filtrate should be colorless, and neutral to litmus papers, but should produce no more than an opalescence with silver nitrate solution, nor any change with barium nitrate solution.

On incineration, it should leave not more than 0,1 per cent. of solid residue.

Preserve it with care.

Maximum dose at a time: 0,2 g.
Maximum dose for a day: 0,6 g.

JODUM.

Iodine.

$J = 126,92$

Grayish-black, dry, rhombic plates or laminae, with a metallic lustre and a characteristic odor; soluble in about 5000 parts of water, with a brown color in 10 parts of alcohol, and readily with a brown color in ether and in potassium iodide solution, but with a violet color in chloroform, and in carbon disulphide.

It contains not less than 99 per cent. of pure iodine.

When heated in a glass tube, it emits a violet vapor.

An aqueous solution of Iodine colors starch solution blue.

When heated, it should volatilize completely.

Shake 0,5 g of Iodine, in coarse powder, with 20 ccm of water, and filter. Gently warm a portion of the filtrate, after decolorizing with sulphurous acid solution, with a small piece of ferrous sulphate, 1 drop of ferric chloride solution and a small quantity of sodium hydroxide solution, and, after cooling, add an excess of hydrochloric acid ; no blue color should be produced.

Add an excess of ammonia water to another portion of the filtrate, then an excess of silver nitrate solution until a complete precipitation takes place, and filter ; the filtrate, on the addition of an excess of nitric acid, may become merely turbid but should produce no precipitate. Remaining portion of the same filtrate should produce no change with barium nitrate solution.

Dissolve 0,2 g of Iodine and 1 g of potassium iodide in 20 ccm of water; the solution should require for complete decolorization at least 15,6 ccm of tenth-normal sodium thiosulphate volumetric solution (Indicator : Starch solution).

Preserve it with care, in glass-stoppered bottles.

Maximum dose at a time : 0,02 g.
Maximum dose for a day : 0,06 g.

KALI CAUSTICUM.

Potassium Hydroxide.

White, dry masses or sticks, with a crystalline fracture, and strongly caustic; easily soluble in an equal part of water or alcohol. It absorbs carbon dioxide in the air, and deliquesces in the moisture.

It contains not less than 85 per cent. of pure potassium hydroxide ($KOH = 56,11$).

An aqueous solution of Potassium Hydroxide, when mixed with an excess of tartaric acid solution, produces a white, crystalline precipitate after a short time.

A solution of 1 g of Potassium Hydroxide in 2 ccm of water, when mixed with 10 ccm of alcohol, should yield no more than a very slight precipitate after 1 hour. Heat a solution of 1 g of Potassium Hydroxide in 10 ccm of water with 15 ccm of lime water to boiling, and filter; the filtrate should not effervesce on pouring into an excess of nitric acid.

Add 2 ccm of sulphuric acid to its solution (1 : 20) in diluted sulphuric acid, and then add to the cooled solution 1 ccm of ferrous sulphate solution, so as to form 2 layers; no brownish zone should be formed at the line of contact.

An aqueous solution (1 : 50) of Potassium Hydroxide, acidified with nitric acid, should neither be immediately affected by barium nitrate solution, nor produce any more than a slight turbidity with silver nitrate solution.

Dissolve 5,6 g of Potassium Hydroxide in water to make the solution measure 100 ccm; 10 ccm of the solution should require for neutralization at least 8,5 ccm of normal hydrochloric acid volumetric solution (Indicator : Methyl orange solution).

Preserve it with care, in well-stoppered bottles.

KALIO-NATRIUM TARTARICUM. *Sal Seignetti.*

Potassium and Sodium Tartrate. *Seignette Salt.*

$KNaC_4H_4O_6 + 4H_2O = 282,22$

Colorless, transparent prisms, or a white powder, with a mild saline taste; soluble in 1,4 parts of water, showing a neutral reaction to phenolphthalein solution, but almost insoluble in alcohol.

The salt contains not less than 98 per cent. of pure potassium and sodium tartrate.

When heated strongly, it fuses, and then chars, emitting an odor of burning sugar; the residue shows an alkaline reaction, and colors a non-luminous flame yellow. An aqueous solution of the salt yields a white, crystalline precipitate with acetic acid.

Shake 10 ccm of its aqueous solution (1 : 10) with 5 ccm of acetic acid, allow the precipitate to subside, and dilute the clear supernatant liquid with an equal part of water; the resulting solution should not be affected by the addition of 8 drops of ammonium oxalate solution within 1 minute.

An aqueous solution (1 : 20) of the salt should not be affected by hydrogen sulphide water, and the same solution, when mixed with nitric acid and separated from the resulting precipitate by filtration, should neither be rendered turbid by barium nitrate solution, nor produce any more than an opalescence with silver nitrate solution.

When heated with sodium hydroxide solution, it should evolve no ammonia.

Strongly heat 1,41 g of the salt until it is completely carbonized, boil the residue with water, and then filter; the filtrate should require for neutralization at least 9,8 ccm of normal hydrochloric acid volumetric solution (Indicator : Methyl orange solution).

Preserve it in well-stoppered bottles.

KALIUM BICARBONICUM.

Potassium Bicarbonate.

$KHCO_3 = 100,11$

Colorless, transparent, dry crystals; slowly soluble in 4 parts of water, showing a slightly alkaline reaction, but insoluble in absolute alcohol.

The salt contains not less than 99,6 per cent. of pure potassium bicarbonate.

An aqueous solution of the salt effervesces with an excess of tartaric acid solution, and yields, after a short time, a white crystalline precipitate.

An aqueous solution (1 : 20) of the salt, supersaturated with acetic acid, should be affected neither by hydrogen sulphide water nor by barium nitrate solution. The same solution, supersaturated with diluted nitric acid, should produce no more than an opalescence with silver nitrate solution. 20 ccm of the same solution, acidified with hydrochloric acid, should acquire no blue color with 0,5 ccm of potassium ferrocyanide solution.

Dissolve 2 g of the salt, previously dried over sulphuric acid, in water to make the solution measure 50 ccm ; 25 ccm of the solution should require for neutralization 10 ccm of normal hydrochloric acid volumetric solution (Indicator : Methyl orange solution).

When heated strongly, it should acquire no black color, and should leave 69 per cent. of solid residue.

O KALIUM BITARTARICUM. *Tartarus depuratus.*

Potassium Bitartrate. *Cream of Tartar.*

$KC_4H_5O_6 = 188{,}16$

White crystals, or a white, crystalline powder, of an acid reaction; soluble in 220 parts of water, 20 parts of boilling water, and in sodium hydroxide solution, soluble with effervescence in potassium carbonate solution, but insoluble in alcohol.

The salt contains not less than 97,8 per cent. of pure potassium bitartrate.

When heated, it chars, emits an odor of burning sugar, and finally leaves an alkaline residue, which, when mixed with water and filtered, gives a filtrate, producing, with an excess of tartaric acid solution, a white, crystalline precipitate, soluble in sodium hydroxide solution.

Shake 5 g of the powdered salt with 100 ccm of water, and filter; the filtrate, when mixed with diluted nitric acid, should neither produce any more than a slight turbidity with barium nitrate solution, nor produce any more than an opalescence with silver nitrate solution.

A solution of 1 g of the salt in ammonia water should not be affected by hydrogen sulphide water.

Add 5 ccm of acetic acid to 1 g of the salt, allow the mixture to stand for 30 minutes with frequent shaking, then add 25 ccm of water, and allow it to settle; the clear, supernatant liquid should not be affected by the addition of 8 drops of ammonium oxalate solution within 1 minute.

On heating the salt with sodium hydroxide solution, no ammonia should be evolved.

Dissolve 1 g of the powdered salt, dried at 100°, in 25 ccm of boiling water; the resulting solution should require for neutralization at least 5,2 ccm of normal potassium hydroxide volumetric solution (Indicator: Phenolphthalein solution).

O KALIUM BROMATUM.

Potassium Bromide.

$KBr = 119,02$

Lustrous, colorless or white, cubical crystals, or a crystalline powder, permanent in the dry air; soluble in 2 parts of water, and in about 200 parts of alcohol.

The salt contains not less than 98 per cent. of pure potassium bromide.

Shake an aqueous solution (1 : 20) of the salt, after the addition of a small quantity of chlorine water, with ether or chloroform; the latter is colored reddish-brown.

The same solution of the salt produces, with an excess of tartaric acid solution, a white, crystalline precipitate after a short time.

When heated in a non-luminous flame, the salt should impart not more than a transient yellow tinge.

Pour 1–2 drops of diluted sulphuric acid upon the powdered salt, contained in a white porcelain dish; no yellow color should immediately be produced.

10 ccm of an aqueous solution (1 : 20) of the salt should produce no blue color within 10 minutes on the addition of 3 drops of ferric chloride solution and a small quantity of starch solution.

The powdered salt should not immediately turn a moistened red litmus paper to violet-blue.

An aqueous solution (1 : 20) of the salt should not be affected by hydrogen sulphide water, barium nitrate solution, or by diluted sulphuric acid. 20 ccm of the same solution, acidulated with 1–2 drops of hydrochloric acid, should produce no blue color by the addition of 0,5 ccm of potassium ferrocyanide solution.

Dissolve 3 g of the salt, previously dried at 100°, in water to make the solution measure 100 ccm; 10 ccm of the resulting solution, to which 1–2 drops of potassium chromate solution have been added, should require not more than 25,4 ccm of tenth-normal silver nitrate volumetric solution to produce a red color.

KALIUM CARBONICUM.

Potassium Carbonate.

$K_2CO_3 = 138,21$

A white, granular, dry powder, of strong hygroscopic nature; soluble in an equal part of water, showing a strongly alkaline reaction, but insoluble in absolute alcohol.

The salt contains not less than 94,6 per cent. of pure potassium carbonate.

An aqueous solution of the salt effervesces on the addition of tartaric acid solution, and produces a white crystalline precipitate.

When heated in a non-luminous flame, the salt should not impart a permanent yellow color.

An aqueous solution (1 : 20) of the salt should not be affected by hydrogen sulphide water; 1 volume of the same solution, when poured into 10 volumes of tenth-normal silver nitrate volumetric solution, should yield a yellowish-white precipitate, which acquires no dark color by gentle heat.

Warm an aqueous solution (1 : 20) of the salt with a small quantity of ferrous sulphate solution and ferric chloride solution, and then supersaturate it with hydrochloric acid; no blue color should be produced. Mix 2 ccm of sulphuric acid with 2 ccm of its solution (1 : 20) in diluted sulphuric acid, and, after cooling, pour on it 1 ccm of ferrous sulphate solution, so as to form 2 layers; no brownish zone should be produced at the line of contact.

An aqueous solution (1 : 20) of the salt, supersaturated with acetic acid, should not be affected by hydrogen sulphide water, or by barium nitrate solution; the same solution, supersaturated with diluted nitric acid, should produce no more than an opalescence with silver nitrate solution, or with ammonium molybdate solution.

20 ccm of an aqueous solution (1 : 20) of the salt, supersaturated with hydrochloric acid, should not be colored blue by the addition of 0,5 ccm of potassium ferrocyanide solution.

10 ccm of an aqueous solution (1 : 10) of the salt, supersaturated with diluted sulphuric acid, should decolorize not more than 5 ccm of potassium permanganate solution.

The solution, obtained by dissolving 1 g of the salt in 50 ccm of water, should require for neutralization at least 13,7 ccm of normal hydrochloric acid volumetric solution (Indicator : Methyl orange solution).

Preserve it in well-stoppered bottles.

KALIUM CARBONICUM CRUDUM.

Crude Potassium Carbonate.

A white, granular, dry powder, having a strongly deliquescent nature; almost completely soluble in an equal part of water, showing a strongly alkaline reaction.

The salt contains not less than 89,8 per cent. of pure potassium carbonate ($K_2CO_3=138,21$).

An aqueous solution of the salt effervesces with an excess of tartaric acid solution, and produces a white, crystalline precipitate.

1 g of the salt, dissolved in 50 ccm of water, should require for neutralization at least 13 ccm of normal hydrochloric acid volumetric solution (Indicator : Methyl orange solution).

Preserve it in well-stoppered bottles.

KALIUM CHLORATUM.

Potassium Chloride.

$KCl=74,56$

White, cubical crystals, or a white, crystalline powder, having a bitter, saline taste; permanent in the air; soluble in 3 parts of water, showing a neutral reaction, but insoluble in absolute alcohol.

An aqueous solution of the salt produces, with an excess of tartaric acid solution, a white, crystalline precipitate after a short time, and, with silver nitrate solution, a white, curdy precipitate, which is soluble in ammonia water.

When heated in a non-luminous flame, the salt should not impart a permanent yellow color.

An aqueous solution (1 : 20) of the salt should not be affected by hydrogen sulphide water, barium nitrate solution, or by sodium carbonate solution; 20 ccm of the same solution should not be colored blue by the addition of 0,5 ccm of potassium ferrocyanide solution.

O KALIUM CHLORICUM.

Potassium Chlorate.

$KClO_3 = 122{,}56$

Lustrous, colorless laminae, or small plates, or a white, crystalline powder; permanent in the air; soluble in 16 parts of water, 2 parts of boiling water, and in 130 parts of alcohol, the solution showing a neutral reaction.

An aqueous solution of the salt, when heated with hydrochloric acid, evolves a greenish-yellow gas, and produces, with an excess of tartaric acid solution, a white crystalline precipitate after a short time.

An aqueous solution (1:20) of the salt should not be affected by ammonium oxalate solution, barium nitrate solution, or by silver nitrate solution, and should produce, with hydrogen sulphide water, no more than an opalescence within 3 minutes. 20 ccm of the same solution should not be colored blue by the addition of 0,5 ccm of potassium ferrocyanide solution.

On heating 1 g of the salt with 5 ccm of sodium hydroxide solution and 0,5 g each of zinc and iron powder, no ammonia should be evolved.

Preserve it with care.

O KALIUM JODATUM.

Potassium Iodide.

$KJ = 166{,}02$

White, dry, cubical crystals, soluble in 0,75 parts of water, and in 12 parts of alcohol.

Add a small quantity of chlorine water to an aqueous solution of the salt, and shake the mixture with chloroform; the latter acquires a violet color. An aqueous solution of the salt gradually produces, with an excess of tartaric acid solution, a white, crystalline precipitate.

When heated in a non-luminous flame, the salt should impart no yellow color.

The powdered salt should not immediately turn a moistened red litmus paper to violet-blue.

An aqueous solution (1 : 20) of the salt should be affected neither by hydrogen sulphide water, nor by barium nitrate solution. Gently warm the same solution with a small piece of ferrous sulphate, 1 drop of ferric chloride solution, and a small quantity of sodium hydroxide solution, and supersaturate the cooled mixture with hydrochloric acid; no blue color should be produced.

Dissolve 1 part of the salt in 19 parts of water, freshly boiled and cooled, and add starch solution and diluted sulphuric acid; no blue color should be immediately produced.

20 ccm of an aqueous solution (1 : 20) of the salt, acidified with 2–3 drops of hydrochloric acid, should not be colored blue by the addition of 0,5 ccm of potassium ferrocyanide solution.

Heat 1 g of the salt with 5 ccm of sodium hydroxide solution and 0,5 g each of zinc and iron powder; no ammonia should be evolved.

Dissolve 0,2 g of the salt in 2 ccm of ammonia water, add, under shaking, 13 ccm of tenth-normal silver nitrate volumetric solution, and then filter; the filtrate, when supersaturated with nitric acid, should neither become turbid, nor be colored dark within 10 minutes.

Preserve it with care, in well-stoppered bottles.

KALIUM NITRICUM.

Potassium Nitrate.

$KNO_3 = 101,11$

Colorless, transparent prisms, or a white, crystalline powder, permanent in the air, having a cooling and slightly bitter taste; soluble in 4 parts of water, and in 0,5 parts of boiling water, but almost insoluble in alcohol.

An aqueous solution of the salt, mixed with ferrous sulphate solution, acquires a blackish-brown color on the addition of sulphuric acid. The same solution yields, with an excess of tartaric acid solution, a white, crystalline precipitate after a short time.

On heating in a non-luminous flame, the salt should impart no more than a transient yellow color.

An aqueous solution (1 : 20) of the salt should show a neutral reaction, and should not be affected by hydrogen sulphide water, ammonium sulphide, ammonium oxalate solution, sodium phosphate solution, or by barium nitrate solution. The same solution should produce no more than an opalescence with silver nitrate solution, and 20 ccm of the same should acquire no blue color on the addition of 0,5 ccm of potassium ferrocyanide solution.

0,1 g of the salt should dissolve without coloration in 1 ccm of sulphuric acid.

KALIUM PERMANGANICUM.

Potassium Permanganate.

$KMnO_4 = 158,03$

Dark purple, dry prisms, having a metallic lustre ; soluble with a violet-red color in 16 parts of water, and in 3 parts of boiling water. The salt deflagrates and explodes when triturated with combustible substances.

An aqueous solution of the salt is decolorized and yields a brown precipitate by the addition of ferrous salts, sulphurous acid, oxalic acid, alcohol and other reducing agents.

The filtrate, obtained by boiling 0,5 g of the salt with 2 ccm of alcohol and 20 ccm of water and then filtering, should be colorless, and, when acidified with nitric acid, should produce no more than an opalescence with barium nitrate solution, or with silver nitrate solution.

Dissolve 0,5 g of the salt in 5 ccm of boiling water, gradually add oxalic acid solution until the solution is decolorized, then add to 2 ccm of the clear filtrate 2 ccm of sulphuric acid, and add 1 ccm of ferrous sulphate solution so as to form 2 layers; no brownish zone should appear at the line of contact.

Preserve it well-closed, protected from light.

KALIUM SULFOGUAJACOLICUM.

Potassium Guaiacolsulphonate.

$KC_7H_7O_5S = 242,25$

Colorless, prismatic or laminar crystals, or a white, crystalline powder; odorless and having a slightly bitter taste; easily soluble in water, but almost insoluble in alcohol.

An aqueous solution of the salt yields, with silver nitrate solution, a grayish-black precipitate, and, with an excess of tartaric acid solution, a white, crystalline precipitate after a short time. The same solution acquires, with ferric chloride solution, a blue color, which changes to yellow by ammonia water.

Add 0,1 g of powdered potassium permanganate to 10 ccm of an aqueous solution (1 : 10) of the salt, warm the mixture until it begins to evolve gas, and then filter; one half of the filtrate produces a white precipitate with barium nitrate solution, and the other half, after the addition of ammonia water, becomes turbid by the addition of calcium chloride solution.

An aqueous solution (1 : 10) of the salt should show not more than a slightly alkaline reaction.

An aqueous solution (1 : 20) of the salt should not be affected by diluted sulphuric acid, or by hydrogen sulphide water. The same solution, acidified with nitric acid, should not be affected by silver nitrate solution, or by barium nitrate solution.

0,1 g of the salt should dissolve without coloration in 1 ccm of sulphuric acid.

When dried at 100°, the salt should not lose its weight.

On incineration, the salt should leave about 35 per cent. of solid residue.

KALIUM SULFURATUM.

Potassium Sulphide. *Liver of Sulphur.*

Sublimed Sulphur	1 *pt.*
Crude Potassium Carbonate	2 *pts.*

Mix them intimately, heat the mixture in a large crucible with occasional stirring, until the fused mass ceases to effervesce and its small portion dissolves in water, decant it on a stone slab, and after cooling break it into small fragments.

Brownish-yellow masses, gradually changing to greenish-yellow, and emitting a faint odor of hydrogen sulphide; deliquescent in the moist air; soluble in about 2 parts of water, forming a slightly turbid, yellowish-green solution, of an alkaline reaction.

An aqueous solution (1 : 20) of the salt, when supersaturated with acetic acid and heated, briskly evolves hydrogen sulphide and deposits sulphur. The filtrate yields, with tartaric acid solution, a white, crystalline precipitate.

Dissolve 5 g of the salt in water, add 4,5 g of copper sulphate, leave the mixture for a short time in a warm place, and then filter; the filtrate should not become dark on the addition of hydrogen sulphide water.

Preserve it in well-stoppered bottles.

KALIUM SULFURICUM.

Potassium Sulphate.

$K_2SO_4 = 174,26$

Colorless, hard crystals, or a crystalline mass, having a bitter, saline taste; soluble in 10 parts of water, and in 4 parts of boiling water, but insoluble in alcohol.

An aqueous solution of the salt yields, with tartaric acid solution, a white, crystalline precipitate after a short time, and, with barium nitrate solution, a white precipitate, insoluble in diluted acids.

On heating in a non-luminous flame, the salt should impart no more than a transient yellow tinge.

An aqueous solution (1 : 20) of the salt should be neutral, and should not be affected by hydrogen sulphide water, ammonium oxalate solution, sodium phosphate solution, or by silver nitrate solution.

An aqueous solution (1 : 20) of the salt should not be colored blue by the addition of 0,5 ccm of potassium ferrocyanide solution. Add 2 ccm of sulphuric acid to 2 ccm of the same solution, and then, after cooling, add 1 ccm of ferrous sulphate solution, so as to form 2 layers; no brownish zone should appear at the line of contact.

KALIUM TARTARICUM.

Potassium Tartrate.

$K_2C_4H_4O_6 + \frac{1}{2}H_2O = 235,26$

Colorless, transparent crystals, or a crystalline powder; permanent in the air; soluble in 0,7 parts of water, showing a neutral reaction, but almost insoluble in alcohol.

The salt contains not less than 98 per cent. of pure potassium tartrate.

When heated strongly, it carbonizes, evolving an odor resembling burning sugar, and finally leaves an alkaline residue, which imparts a violet color to a non-luminous flame.

An aqueous solution of the salt produces a white, crystalline precipitate on the addition of acetic acid.

Shake 10 ccm of an aqueous solution (1 : 10) of the salt with 5 ccm of acetic acid, and allow the resulting precipitate to settle; the resulting clear solution, diluted with an equal part of water, should not be affected within 1 minute by 8 drops of ammonium oxalate solution.

An aqueous solution (1 : 20) of the salt should not be affected by hydrogen sulphide water. Add nitric acid to the same solution, and then filter off the precipitate here produced; the filtrate should neither be rendered turbid by barium nitrate solution, nor should it produce any more than an opalescence with silver nitrate solution. 20 ccm of the same solution should not be colored blue by the addition of 0,5 ccm of potassium ferrocyanide solution.

When heated with sodium hydroxide solution, it should evolve no ammonia.

Strongly heat 2,35 g of the salt to carbonize it completely, boil the residue with water, and then filter; the filtrate should require for neutralization at least 19,6 ccm of normal hydrochloric acid volumetric solution (Indicator: Methyl orange solution).

KAMALA.

Kamala.

The glands and fasciculate hairs of the epidermis of the fruit of Mallotus philippinensis *Muell. Arg.*

A brownish-red powder; odorless and tasteless. Under the microscope, it shows irregularly spherical glands, in which about 60 radially arranged, club-shaped cells are contained; a red secretion, contained in the space between the walls of the club-shaped cells and also between those cells and the cuticule surrounding them; hairs, colorless, thick-walled and stellate.

Kamala should contain, if any, not more than a minute quantity of mineral substance, and no more than a trace of fruit texture.

On incineration, it should leave not more than 6 per cent. of solid residue.

O KREOSOTUM.

Creosote.

A colorless or faintly yellowish, highly refractive, clear, oily liquid, of nearly neutral reaction; having a burning taste and a penetrating, empyreumatic odor; clearly soluble in about 120 parts of boiling water, the solution becoming turbid and depositing oil globules when cooled, and clearly miscible with ether, alcohol, and with carbon disulphide.

Not less than 75 per cent. of creosote distils at 200–220°. Creosote does not solidify at -20°. Specific gravity: not below 1,08.

A saturated, aqueous solution of Creosote yields a reddish-brown precipitate with bromine water, and the same solution, on the addition of a small quantity of ferric chloride solution, becomes turbid and produces a grayish-green or blue color, which finally changes to a dirty brown. An alcoholic solution of Creosote produces, on the addition of a small quantity of ferric chloride solution, a deep blue color, which changes to a dark green.

Shake 1 ccm of Creosote with 2,5 ccm of sodium hydroxide solution; a clear but not dark mixture should result, which is not rendered turbid by the dilution with 50 ccm of water.

Mix 1 volume of Creosote with 10 volumes of potassium hydroxide solution (1 : 5), prepared with absolute alcohol; a crystalline ,solid mass should be produced after a few hours. Shake Creosote with an equal volume of collodion; no gelatinous substance should be produced.

1 volume of Creosote should hardly be dissolved by 3 volumes of a mixture, composed of 3 parts of glycerin and 1 parts of water.

Add 2 ccm of petroleum benzin to 1 ccm of Creosote, shake the resulting clear solution with 2 ccm of saturated baryta water, which has been prepared freshly, and allow the mixture to settle; the upper layer should not be colored blue or dirty brown, and the under layer should not be colored red.

Preserve it with care, in well-stoppered bottles.

Maximum dose at a time: 0,5 g.
Maximum dose for a day: 1,5 g.

KREOSOTUM CARBONICUM.

Creosote Carbonate.

A colorless or yellowish, clear, viscid liquid, almost odorless, and having a slightly bitter taste; insoluble in water, soluble in alcohol, ether, and in chloroform. When cooled strongly, it separates crystals.

Dissolve it in a mixture of equal parts of alcohol and potassium hydroxide solution, heat on a water bath until alcohol is completely removed, and then shake the residue with diluted sulphuric acid and ether; the ethereal solution, when evaporated, produces a residue, which emits an odor of creosote, and, when dissolved in alcohol and then mixed with diluted ferric chloride solution, acquires a deep blue color, changing to a dark green.

On boiling with clear, alcoholic potassium hydroxide solution, which has been prepared freshly, for a few minutes, it produces a crystalline precipitate, which, when washed with absolute alcohol, evolves carbon dioxide by the addition of hydrochloric acid.

On incineration, it should leave not more than 0,1 per cent. of solid residue.

Creosote Carbonate, which contains crystals, should be melted when wanted for use.

LACTYLPHENETIDINUM.

Lactylphenetidine.

$C_{11}H_{15}NO_3 = 209,19$

Colorless, odorless crystals, having a slightly bitter taste; soluble in about 500 parts of water, 55 parts of boiling water, and in 10 parts of alcohol. Melting point: about 118°.

Boil 0,1 g of Lactylphenetidine with 1 ccm of hydrochloric acid for 1 minute, dilute the mixture with 10 ccm of water, and then filter after cooling; the filtrate produces, with 3 drops of chromic acid solution, at first a violet color, which changes to a dark red.

Add 10 ccm of boiling water to 0,1 g of Lactylphenetidine, shake the solution frequently and vigorously, then filter after cooling, and add bromine water to the filtrate until it becomes yellow; the mixture should produce no turbidity, and should become colorless on standing for a short time, and then deposit a white, crystalline precipitate, the supernatant liquid gradually changing to reddish-brown.

0,1 g of Lactylphenetidine should dissolve without coloration in 1 ccm of sulphuric acid.

On incineration, it should leave not more than 0,1 per cent. of solid residue.

Preserve it with care.

Maximum dose at a time: 0,7 g.
Maximum dose for a day: 2 g.

LICHEN ISLANDICUS.

Iceland Moss.

The dried lichen, Cetraria islandica *Achar.*

The thallus is 0,5 mm or less in thickness, brown on one side, gray or pale brown on the other, foliaceous, irregularly lobed, smooth on both sides, fringed at the margin, and furrowed at the base.

Iodine water, when dropped on the cross section of the thallus, colors the hyphae blue.

An infusion, obtained by boiling 1 part of Iceland Moss with 20 parts of water, has a bitter taste, and gelatinizes on cooling.

LIGNUM GUAJACI.

Guaiacum Wood.

The heart-wood of Guajacum officinale *L.* or Guajacum sanctum *L.*

Guaiacum Wood is externally brown or greenish, internally brownish, hard and heavy, and sinks in water. Under the microscope, cross sections of the wood show medullary rays, which are 1 cell wide and 3–6 mostly 4 cells deep; the tissue, between the medullary rays, containing usually isolated tracheae, which are filled with brown-colored resin, and are often so broad as to fill up the space between medullary rays; the wood-parenchyma in the above mentioned tissue, arranged in 1–2 cells broad, irregular, tangential rows, sometimes containing oxalate crystals; the remaining portion of the tissue, mainly consisting of exceedingly thick-walled, sclerenchymatous fibres.

Shake 0,5 g of the wood, in fine powder, with 10 ccm of alcohol, and filter; the filtrate, on the addition of 1 drop of ferric chloride solution, develops a deep blue color, which disappears after a short time.

Odor aromatic; taste aromatic and slightly acrid.

LIGNUM QUASSIAE.

Japanese Quassia Wood. *Kuboku.*

The wood of the trunk and branches of Picrasma quassioides *Benn.*

In chips or shavings; yellowish-white and compact.

Cross sections of the wood show conspicuous annual rings; slender medullary rays and somewhat irregular concentric lines, which are visible to naked eyes.

Under the microscope, cross sections of Japanese Quassia Wood show medullary rays, 1–5 rows of cells in width and from 5 to several layers of cells in depth; tracheae of the spring woods, attaining 0,15 mm in diameter, single or in groups, contained in the tissue of wood-parenchyma, while the tracheae of the autumn woods, their diameter being one fifth of the former, lying in narrow zones of wood-parenchyma; wood fibres very thickened; oxalate crystals absent; medullary rays and wood-parenchyma cells filled with starch grains.

Japanese Quassia Wood has a persistent bitter taste.

LIGNUM SANTALI ALBUM.

Sandalwood.

The compact and hard wood of Santalum album *L.*

Under the microscope, cross sections of Sandalwood show medullary rays consisting of 1–2 rows of radially prolonged cells; wood fibres with remarkably thickened walls; tracheae isolated or in groups of 2–3, containing yellow oil drops; parenchyma cells occasionally containing rhombic single crystals of oxalate.

It emits a characteristic aroma when heated.

LIGNUM SASSAFRAS.

Sassafras Wood.

The wood of the root of Sassafras officinale *Nees.*

Sassafras Wood is light, loose, reddish or brownish in color, and shows annual rings.

Under the microscope, cross sections of Sassafras Wood show medullary rays, 1–4 rows of cells in width; secrete-reservoirs with suberised walls, containing yellowish secretion, lying in the tissue between medullary rays, and being as wide as smaller tracheae ; tracheae with circularly bordered, slit-like pits ; sclerenchymatous fibres with moderately thickened walls, which are sparsely and faintly pitted.

It has an aromatic odor and an aromatic, slightly sweet taste.

LIMONADA CITRICA.

Lemonade of Citric Acid.

Citric Acid	1 *pt.*
Water	170 *pts.*
Syrup	30 *pts.*

Mix them.

Lemonade of Citric Acid is a colorless, clear liquid.

Prepare the lemonade when wanted for use.

LIMONADA HYDROCHLORICA.

Lemonade of Hydrochloric Acid.

Diluted Hydrochloric Acid	1 *pt.*
Water	180 *pts.*
Syrup	20 *pts.*

Mix them.

Lemonade of Hydrochloric Acid is a colorless, clear liquid.

Prepare the lemonade when wanted for use.

LINIMENTA.

Liniments.

Liniments are the homogeneous preparations for external use, chiefly composed of soap, or soap and fats, or oils, or analogous substances.

LINIMENTUM AMMONIATUM.

Ammonia Liniment.

Ammonia Water	1 *pt.*
Sesame Oil	4 *pts.*

Agitate ammonia water with sesame oil until a white, homogeneous, thick liquid is obtained.

LINIMENTUM CALCARIAE.

Lime Liniment.

Lime Water	1 *pt.*
Sesame Oil	1 *pt.*

Mix them by agitation until a white, homogeneous, thick liquid is obtained.

LINIMENTUM CHLOROFORMII.

Chloroform Liniment.

Chloroform	1 *pt.*
Camphorated Oil	1 *pt.*

Mix them.

LINIMENTUM SAPONATO-CAMPHORATUM.

Opodeldoc.

Soap Liniment. *Opodeldoc.*

Potash Soap	40 *pts.*
Purified Camphor	10 *pts.*
Alcohol	420 *pts.*

Oil of Thyme	2 *pts.*
Oil of Rosemary	3 *pts.*
Ammonia Water	25 *pts.*

Dissolve the soap and purified camphor in alcohol, filter, and then add to the filtrate oil of thyme, oil of rosemary and ammonia water.

Soap Liniment is an almost colorless or yellowish liquid.

Preserve it in well-stoppered bottles.

LIQUOR ALUMINII ACETICI.

Solution of Aluminium Acetate.

Aluminium Sulphate	50 *pts.*
Precipitated Calcium Carbonate	23 *pts.*
Acetic Acid	60 *pts.*
Distilled Water	165 *pts.*

Dissolve aluminium sulphate in 135 parts of distilled water without applying heat, filter the solution, and then add distilled water to make its specific gravity 1,152. Gradually add to it, with stirring, a mixture, obtained by triturating precipitated calcium carbonate with 30 parts of distilled water, then add acetic acid, little by little, and allow the mixture to stand with frequent stirring, until it ceases to evolve gas. Filter the supernatant liquid, and add distilled water to the filtrate to make its specific gravity 1,044–1,048.

A colorless, clear liquid, showing an acid reaction, and having a faint odor of acetic acid and a sweetish, astringent taste.

The solution contains 7,3–8,3 per cent. of basic aluminium acetate ($Al(C_2H_3O_2)_2OH = 162,18$).

Add 0,02 g of potassium sulphate to 10 ccm of the solution, and heat it on a water bath; it congeals, and, on cooling, turns clear again after a while.

When 1 ccm of the solution is mixed with 3 ccm of stannous chloride solution, it should assume no dark color within 1 hour. 7.5

6 ccm of the solution, diluted with 14 ccm of water, should immediately assume no blue color with 0,5 ccm of potassium ferrocyanide solution. Fe

When acidified with hydrochloric acid, the solution should not be affected by hydrogen sulphide water. H

When twice its volume of alcohol is added, it may immediately produce an opalescence, but should yield no precipitate. AL SO_4 Ca Mg

Heat to boiling 10 g of the solution with 100 ccm of water, then add 5 ccm of ammonia water, filter, wash, and strongly heat the resulting precipitate; the residue should weigh 0,23--0,26 g.

LIQUOR AMMONII ACETICI. *Spiritus Mindereri.*

Solution of Ammonium Acetate. *Spirit of Mindererus.*

Ammonia Water	5 *pts.*
Acetic Acid	6 *pts.*

Add acetic acid to ammonia water, heat to boiling, then after cooling, neutralize it with ammonia water, filter, and dilute the filtrate with distilled water to make its specific gravity 1,032–1,034.

A colorless, clear liquid, showing a neutral or slightly acid reaction, and containing 15–16 per cent. of pure ammonium acetate ($NH_4 \cdot C_2H_3O_2 = 77,08$).

Add sulphuric acid to the solution, and heat; it evolves an odor of acetic acid.

Add potassium hydroxide solution to the solution, and heat; it evolves an odor of ammonia.

When evaporated on a water bath, it should completely or almost completely volatilize.

The solution should be affected neither by hydrogen sulphide water, nor by barium nitrate solution. When acidified with nitric acid, it should produce no more than an opalescence with silver nitrate solution.

LIQUOR CRESOLI SAPONATUS.

Compound Solution of Cresol.

Linseed Oil	120 *pts.*
Potassium Hydroxide	27 *pts.*
Alcohol	12 *pts.*
Water	41 *pts.*
Crude Cresol	200 *pts.*

Mix linseed oil with a mixture of potassium hydroxide, alcohol and water, allow the mixture to stand at ordinary temperature with frequent stirring, and, when the oil has been completely saponified, dissolve crude cresol in the resulting liquid.

A yellowish-brown or reddish-brown, clear, thick liquid, having an odor of cresol, and showing an alkaline reaction ; clearly soluble in water, alcohol, glycerin, and in petroleum ether. Specific gravity: 1,038–1,041.

When 3 drops of the solution are mixed with 6 ccm of sodium chloride solution (1 : 100), it should produce no more than a slight opalescence.

Introduce 20 ccm of the solution into a flask, dilute it with 60 ccm of water, add to it 2–3 drops of methyl orange solution, and then add diluted sulphuric acid, drop by drop, until it acquires a slightly red color. Distil the resulting mixture with steam until the distillate evolves no odor of cresol, vigorously shake it with 20 g of sodium chloride and 80 ccm of ether, and set it aside. Separate the clear ethereal solution, remove the ether by distillation, and dry the residue for 40 minutes at 100°; the residue should weigh at least 10 g.

The cresol here separated should conform to the tests for identity and purity under *Cresolum crudum.*

Preserve it in glass-stoppered bottles, protected from light.

LIQUOR FERRI CITRICI OXYDATI.

Solution of Ferric Citrate.

Solution of Ferric Sulphate	42 *pts.*
Ammonia Water	42 *pts.*
Citric Acid	15 *pts.*
Distilled Water	*a sufficient quantity.*

Dilute the solution of ferric sulphate with 500 parts of distilled water, and pour the diluted solution, with stirring, into a mixture of ammonia water and 100 parts of distilled water. Drain the precipitate on a filter cloth, mix it with 500 parts of distilled water, drain it again on the same filter cloth, and repeat the same operation several times, until the washing hardly produces an opalescence with barium nitrate solution. Transfer the moist precipitate into a porcelain dish, add citric acid, heat the mixture, with stirring, at a temperature not exceeding 60° on a water bath until the precipitate dissolves, and then evaporate the solution to make the product weigh 50 parts.

A dark brown, clear liquid, showing an acid reaction. Specific gravity: 1,26.

Solution of Ferric Citrate, diluted with water and mixed with a small quantity of hydrochloric acid, yields, with potassium ferrocyanide solution, a dark blue precipitate.

The solution should produce no precipitate with an excess of ammonia water. When boiled with twice its volume of potassium hydroxide solution until iron is completely precipitated, it should evolve no distinct odor of ammonia; a portion of the filtrate, separated from the precipitate by filtration, when saturated with acetic acid, should produce no crystalline precipitate even on standing.

The solution, diluted with twice its volume of water and mixed with a small quantity of nitric acid, should produce no more than a slight turbidity with barium nitrate solution.

When evaporated to dryness in thin layers at a suitable temperature, it should leave about 44 per cent. of residue, which, when strongly heated, leaves 11 per cent. of ferric oxide.

Preserve it protected from light.

O LIQUOR FERRI SESQUICHLORATI.

Solution of Ferric Chloride.

Dissolve ferric chloride in about equal part of distilled water to make a solution with a specific gravity of 1,280–1,282.

A yellowish-brown, clear liquid, containing 10 per cent. of pure iron (Fe = 55,84).

Its aqueous dilution produces, with silver nitrate solution, a white precipitate insoluble in diluted nitric acid, and, when acidified with diluted hydrochloric acid, the same aqueous dilution produces, with potassium ferrocyanide solution, a deep blue precipitate.

When approached with a glass rod moistened with ammonia water, it should produce no white fumes, nor should it color blue a moistened zinc iodide and starch paper brought near to it.

Mix 1 volume of the solution with 3 volumes of stannous chloride solution; the mixture should acquire no dark color within 1 hour.

Add to 3 drops of the solution 10 ccm of tenth-normal sodium thiosulphate volumetric solution, and heat the mixture gradually to boiling; the mixture, after cooling, should deposit a minute quantity of ferric hydroxide.

An aqueous dilution (1 : 10) of the solution, mixed with diluted hydrochloric acid, should produce no blue color with potassium ferricyanide solution.

Add to 5 ccm of the solution 20 ccm of water and an excess of ammonia water, and filter; the filtrate should be colorless, and, after the addition of acetic acid, should produce no change with barium nitrate solution, or with potassium ferrocyanide solution.

Add to 2 ccm of the same filtrate an equal volume of sulphuric acid, with cooling, and then pour ferrous sulphate solution upon the mixture, so as to form 2 layers; no brownish zone should be formed at the line of contact.

5 ccm of the same filtrate, when evaporated to dryness and ignited, should leave no weighable solid residue.

Preserve it in glass-stoppered bottles, protected from light.

LIQUOR FERRI SULFURICI OXYDATI.

Solution of Ferric Sulphate.

Ferrous Sulphate	80 *pts.*
Distilled Water	40 *pts.*
Sulphuric Acid	15 *pts.*
Nitric Acid	24 *pts.*

Introduce them into a flask, dissolve by heating on a water bath until a clear, brown liquid results, 1 drop of which, when diluted with water, gives no blue coloration with potassium ferricyanide solution, then transfer the liquid into a porcelain dish, previously weighed, and evaporate it to make the whole weigh 100 parts. To the residue add a small quantity of distilled water, evaporate it again, repeat the same operation until the liquid shows no reaction of nitric acid, and finally make the solution weigh 160 parts by the addition of distilled water.

A brownish-yellow, clear, somewhat thick liquid, having a specific gravity of 1,428–1,430.

The solution contains 10 per cent. of pure iron (Fe=55,84).

An aqueous dilution of the solution gives, with barium nitrate solution, a white precipitate, and, with potassium ferrocyanide solution, a deep blue precipitate.

A mixture of 1 volume of the solution and 3 volumes of stannous chloride solution should acquire no dark color within 1 hour.

5 ccm of the solution, when diluted with 20 ccm of water, should produce, with potassium ferricyanide solution, no blue color, nor should

it produce, with silver nitrate solution, any more than an opalescence. The same diluted solution, when heated with an excess of ammonia water, and filtered, should yield a colorless filtrate, which, after the addition of acetic acid, is not affected by potassium ferrocyanide solution. Gradually add to 2 ccm of the same filtrate, with cooling, an equal volume of sulphuric acid, and then pour ferrous sulphate solution on the mixture, so as to form 2 separate layers; no brownish zone should develop at the line of contact. 5 ccm of the same, on evaporation to dryness and ignition, should leave no weighable solid residue.

Preserve it in glass-stoppered bottles.

O LIQUOR GELATINAE STERILISATUS.

Sterilized Solution of Gelatin.

Gelatin	10 *pts.*
Sodium Chloride	0,5 *pts.*
Distilled Water	90 *pts.*

Dissolve gelatin and sodium chloride in distilled water by warming, neutralize the solution with sodium carbonate solution, and filter. Introduce 10–40 ccm of the filtrate into hard glass tubes, fuse, and sterilize them thrice, each time for 15 minutes, and at intervals of 24 hours, in a steam bath held at a temperature of 100°. Inscribe the name of the laboratory, the volume of the content of each tube, the number and date of the test on the labels, seal, and pack them.

A colorless or slightly yellowish, clear, thick liquid, without odor, showing a neutral reaction, congealing at about 12°, and melting at 25°.

The solution should be clear, and show no change, on standing at a temperature of 37° for 7 days.

The solution should be sterile when tested by aerobic and anaerobic cultivation, using not less than 2 ccm of the solution for each test.

10 ccm of the solution, when injected subcutaneously into a guinea-pig (Cavia cobaya *Schreb.*, Cavia porcellus *L.*), should be harmless.

Preserve it in a cool place.

LIQUOR GUTTAPERCHAE. *Traumaticinum.*

Solution of Gutta-Percha. *Traumaticine.*

Purified Gutta-Percha, *in thin scales*	1 *pt.*
Chloroform	9 *pts.*

Mix them in a well-stoppered bottle, dissolve by agitation, set the mixture aside, and then decant the supernatant solution.

A colorless to brownish, clear liquid, which, when spread in thin layers and allowed to volatilize, leaves a translucent, elastic film.

Preserve it in well-stoppered bottles.

LIQUOR HYDROGENII PEROXYDATI.

Solution of Hydrogen Peroxide.

A colorless, clear, odorless liquid, having a slightly bitter taste, and showing a weakly acid reaction. The solution decomposes and evolves oxygen very gently at ordinary temperature, or suddenly when boiled.

The solution contains not less than 3 per cent. of hydrogen peroxide (H_2O_2) = 34,02).

Pour diluted sulphuric acid and potassium permanganate solution into the solution; the mixture effervesces and turns pale.

To 1 ccm of the solution add a few drops of diluted sulphuric acid, about 2 ccm of ether, subsequently a few drops of potassium bichromate solution, and shake the resulting mixture; the ethereal layer assumes a deep blue color. Add 1 drop of the solution to zinc iodide and starch solution, which has been weakly acidified with diluted hydrochloric acid; it produces a blue to violet color.

5 ccm of the solution, when mixed with diluted sulphuric acid, should produce no change within 10 minutes.

Mix the solution with a few drops of sodium acetate solution; the mixture should hardly be affected by calcium chloride solution.

Add tenth-normal potassium hydroxide volumetric solution, drop by drop, to 50 ccm of the solution ; not more than 3 ccm of the volumetric solution should be required for neutralization (Indicator : Phenolphthalein solution).

20 ccm of the solution, when evaporated on a water bath, should leave not more than 0,02 g of solid residue.

Add water to 10 g of the solution to make it measure 100 ccm; 10 ccm of the diluted solution, when mixed with 5 ccm of diluted sulphuric acid and 10 ccm of potassium iodide solution, and then allowed to stand for 30 minutes in a well-closed flask, should require at least 17,7 ccm of tenth-normal sodium thiosulphate volumetric solution to combine the iodine set free (Indicator : Starch solution).

Preserve it in well-stoppered bottles, in a cool dark place.

LIQUOR JODI COMPOSITUS. *Solutio Lugoli.*

Compound Solution of Iodine. *Lugol's Solution.*

Iodine	1 *pt.*
Potassium Iodide	2 *pts.*
Distilled Water	27 *pts.*

Dissolve iodine and potassium iodide in distilled water.

A dark brown, clear liquid, having an odor of iodine.

1 drop of diluted Compound Solution of Iodine, added to starch solution, produces a deep blue color.

Introduce 3 g of the solution into a small porcelain dish, evaporate it on a water bath, moisten the residue with water, evaporate, and repeat the precedure several times until it becomes completely white; the residue should weigh about 0,2 g.

In order to decolorize a mixture of 5 g of the solution and 25 ccm of water, 12,9–13,1 ccm of tenth-normal sodium thiosulphate volumetric solution should be required (Indicator : Starch solution).

Preserve it with care, in glass-stoppered bottles, protected from light.

LIQUOR KALI CAUSTICI.

Solution of Potassium Hydroxide.

A colorless, clear liquid, showing a strong alkaline reaction. Specific gravity: 1,138–1,140.

The solution contains about 15 per cent. of pure potassium hydroxide ($KOH = 56,11$).

The solution, when mixed with an equal part of water and supersaturated with an excess of tartaric acid solution, produces a white, crystalline precipitate.

Add 45 ccm of lime water to 10 ccm of the solution, heat the mixture to boiling, and then filter; on pouring the filtrate into an excess of nitric acid, no effervescence should take place.

The solution, diluted with 5 times its volume of water and supersaturated with an excess of nitric acid, should neither be colored by hydrogen sulphide water, nor be instantly affected by barium nitrate solution, nor should it produce any more than an opalescence with silver nitrate solution.

Mix 2 ccm of the solution, supersaturated with diluted sulphuric acid, with 2 ccm of sulphuric acid, and add to to the mixture, after cooling, 1 ccm of ferrous sulphate solution, so as to form 2 layers; no brownish zone should appear at the line of contact.

The solution, supersaturated with an excess of hydrochloric acid, should produce no more than an opalescence with an excess of ammonia water within 2 hours.

5 ccm of the solution, diluted with 20 ccm of water, should require for neutralization 15,1–15,3 ccm of normal hydrochloric acid volumetric solution (Indicator: Methyl orange solution).

Preserve it with care.

O LIQUOR KALII ACETICI.

Solution of Potassium Acetate.

Acetic Acid	25 *pts.*
Potassium Bicarbonate	12 *pts.*

Gradually add potassium bicarbonate to acetic acid, heat the solution to boiling, neutralize it with a fresh portion of potassium bicarbonate, and, after cooling, dilute it with water to make its specific gravity 1,176–1,180.

A colorless, clear liquid, showing a neutral or very slightly acid reaction.

The solution contains about 34 per cent. of pure potassium acetate $(KC_2H_3O_2 = 98,13)$.

The solution produces a white, crystalline precipitate with tartaric acid solution, and a deep red color with ferric chloride solution.

The solution, diluted with 4 times its volume of water, should produce no change either with hydrogen sulphide water, or, when acidified with diluted nitric acid, with barium nitrate solution, and should produce no more than a slight opalescence with silver nitrate solution.

The solution should have no empyreumatic odor.

O LIQUOR KALII ARSENICOSI.

Liquor arsenicalis Fowleri.

Solution of Potassium Arsenite. *Fowler's Solution.*

Arsenous Acid	1 *pt.*
Potassium Bicarbonate	1 *pt.*
Alcohol	14 *pts.*
Spirit of Lavender	1 *pt.*
Distilled Water	52 *pts.*

Boil arsenous acid and potassium bicarbonate with 2 parts of distilled water, until solution has been effected, then add 50 parts of distilled water, alcohol and spirit of lavender, and dilute the solution with distilled water to make the product weigh 100 parts.

A colorless, clear, aromatic liquid, showing an alkaline reaction. The solution, acidified with hydrochloric acid, produces a yellow precipitate by the addition of hydrogen sulphide water.

The solution contains 1 per cent. of pure arsenous acid (As_2O_3 = 197,92).

The solution should produce no change, when acidified with hydrochloric acid, and, when neutralized with nitric acid, it should produce no reddish-brown precipitate with silver nitrate solution.

Mix 5 ccm of the solution with 1 g of sodium bicarbonate, 20 ccm of water and a small quantity of starch solution, and to the mixture add tenth-normal iodine volumetric solution, drop by drop; 10,1 ccm of the latter should be required in order to produce a permanent blue color.

Preserve it with special care.

Maximum dose at a time: 0,5 g.
Maximum dose for a day: 1,5 g.

LIQUOR NATRII CHLORATI PHYSIOLOGICA.

Physiological Solution of Sodium Chloride.

Physiological Salt Solution.

Sodium Chloride	8,5 *g.*
Distilled Water	1000 *g.*

Dissolve sodium chloride in distilled water, filter the solution, and sterilize it by heating with steam.

The solution should be quite clear, and free from bacteria.

Prepare it when wanted for use, or preserve it in hermatically sealed containers, free from bacteria.

O LIQUOR PLUMBI SUBACETICI.

Solution of Lead Subacetate. *Vinegar of Lead.*

Lead Acetate	3 *pts.*
Lead Oxide	1 *pt.*
Distilled Water	10 *pts.*

Triturate lead acetate and lead oxide with 0,5 parts of distilled water, place the resulting yellowish mixture in a covered vessel, and heat on a water bath, until a homogeneous, white or reddish-white mixture is obtained. Gradually add 9,5 parts of boiling distilled water, allow the mixture to settle in a covered vessel, decant the supernatant liquid, and dilute it with distilled water until it reaches a specific gravity of 1,23–1,24.

A colorless, clear liquid, with a sweet, astringent taste, showing an alkaline reaction, but not reddening phenolphthalein solution.

Solution of Lead Subacetate acquires, on the addition of ferric chloride solution, a reddish color, and on standing the mixture produces a white precipitate, while the supernatant liquid becomes dark red. The white precipitate dissolves in a large quantity of boiling water.

The solution, after the addition of acetic acid, should produce a pure white precipitate with potassium ferrocyanide solution.

Preserve it with care, in well-stoppered bottles.

LIQUOR PLUMBI SUBACETICI DILUTUS.

Aqua Goulardi.

Diluted Solution of Lead Subacetate. *Goulard's Water.*

Solution of Lead Subacetate	2 *pts.*
Distilled Water	98 *pts.*

Mix them.

Prepare it freshly when wanted for use.

LIQUOR RINGERI.

Ringer's Solution.

Sodium Chloride	8 *g.*
Calcium Chloride	0,1 *g.*
Potassium Chloride	0,075 *g.*
Sodium Bicarbonate	0,1 *g.*
Distilled Water	1000 *g.*

Dissolve the salts in distilled water, filter the solution, and sterilize the filtrate with steam.

Prepare the solution when wanted for use.

LITHIUM CARBONICUM.

Lithium Carbonate.

$Li_2CO_3=73,89$

A light, white powder, permanent in the air, fusing when heated; soluble in about 80 parts of water, showing an alkaline reaction, but difficultly soluble in boiling water, almost insoluble in alcohol.

Lithium Carbonate, dried at 100°, contains not less than 99 per cent. of pure salt.

The salt dissolves with effervescence in hydrochloric acid, and the resulting solution, when heated on a platinum wire loop, imparts a crimson color to a non-luminous flame.

An aqueous solution (1 : 50) of the salt, prepared by the addition of nitric acid, should produce no more than an opalescence with silver nitrate solution, nor should it be affected by barium nitrate solution. The same solution, supersaturated with ammonia water, should not be affected by hydrogen sulphide water, or by ammonium oxalate solution.

Dissolve 1 g of the salt in diluted hydrochloric acid, and neutralize the solution with ammonia water; the resulting solution should produce no precipitate by the addition of sodium phosphate solution.

Dissolve 0,2 g of the salt in 1 ccm of hydrochloric acid, evaporate the solution to dryness, and then add 3 ccm of alcohol to the cooled residue; a clear solution should be obtained, or the insoluble residue, if any, should be very slight.

0,5 g of the salt, previously dried at 100°, should require for neutralization at least 13,4 ccm of normal hydrochloric acid volumetric solution (Indicator : Methyl orange solution).

LYCOPODIUM.

Lycopodium.

The spores of Lycopodium clavatum *L.*, and of other species of Lycopodium.

A light yellow, very mobile powder, without odor or taste.

When shaken with water or chloroform, Lycopodium floats upon the surface, its ingredients not being dissolved out, but sinks when boiled with water.

Under the microscope, Lycopodium consists of reticulated, tetrahedral cell, with 3 almost flat and 1 convex sides ; each spore being of an almost equal size.

Lycopodium should contain not more than a minute quantity of the broken piece of the stems and leaves, nor should it contain the spores of pinus or of typha, starch, sulphur, etc.

On incineration, it should leave not more than 3 per cent. of solid residue.

O MAGNESIA USTA.

Magnesium Oxide. *Magnesia.*

$MgO = 40,32$

A light, white, fine powder; almost insoluble in water.

A solution of Magnesium Oxide in diluted sulphuric acid, when mixed with ammonium chloride solution and an excess of ammonia water, yields, with sodium phosphate solution, a white, crystalline precipitate.

Boil 0,8 g of Magnesium Oxide with 50 ccm of freshly boiled water, and filter while hot; the filtrate should show not more than a slightly alkaline reaction, and, when evaporated to dryness, should leave not more than 0,01 g of residue. When 5 ccm of acetic acid is poured upon the insoluble residue on the filter paper, no considerable amount of gas should be evolved.

Shake 0,2 g of Magnesium Oxide with 20 ccm of water, and filter; the filtrate should be rendered not more than opalescent within 5 minutes by ammonium oxalate solution.

Dissolve 0,5 g of Magnesium Oxide in 25 ccm of acetic acid; the solution should be cololess, and should not be affected by hydrogen sulphide water. The same solution should be rendered not more than opalescent after 5 minutes by barium nitrate solution, and the same, mixed with nitric acid, should be rendered not more than opalescent by silver nitrate solution.

20 ccm of an aqueous solution (1 : 50) of Magnesium Oxide, prepared by the addition of hydrochloric acid sufficient for solution, should not give an immediate blue coloration upon the addition of 0,5 ccm of potassium ferrocyanide solution.

Preserve it well-closed.

MAGNESIUM CARBONICUM.

Magnesium Carbonate.

Light, white, friable masses, or a bulky powder; sparingly soluble in water, showing a slightly alkaline reaction.

Magnesium Carbonate dissolves with effervescence in diluted sulphuric acid, forming a solution, which, when mixed with ammonium chloride solution and an excess of ammonia water, yields, with sodium phosphate solution, a white, crystalline precipitate.

Magnesium Carbonate should dissolve with no coloration in diluted hydrochloric acid.

Boil 2 g of Magnesium Carbonate with 50 ccm of freshly boiled water, and filter; the filtrate, when evaporated to dryness, should leave not more than 0,01 g of solid residue.

An aqueous solution (1 : 20) of the salt, prepared by the addition of acetic acid sufficient for solution, should not be affected by hydrogen sulphide water. The same solution should be rendered not more than opalescent within 5 minutes by barium nitrate solution, and the same, mixed with nitric acid, should be rendered not more than opalescent by silver nitrate solution.

20 ccm of an aqueous solution (1 : 20) of the salt, prepared by the addition of sufficient hydrochloric acid for solution, should not give an immediate blue coloration upon the addition of 0,5 ccm of potassium ferrocyanide solution.

When 0,5 g of the salt is heated strongly, the residue should weigh not less than 0,2 g, and, when the residue is shaken with 20 ccm of water and filtered, the filtrate should be rendered not more than opalescent within 5 minutes by ammonium oxalate solution.

MAGNESIUM CITRICUM EFFERVESCENS.

Effervescent Magnesium Citrate.

Magnesium Carbonate	5 *pts.*
Citric Acid	23 *pts.*
Sodium Bicarbonate, *in medium powder*	17 *pts.*
White Sugar, *in medium powder*	4 *pts.*
Distilled Water	2 *pts.*

Mix the magnesium carbonate intimately with 15 parts of citric acid and with distilled water, dry the mixture at about 30°, then reduce it to a medium powder, and triturate it with sodium bicarbonate, 8 parts of citric acid, in medium powder, and with sugar, by pouring alcohol, drop by drop, until a crumby mass is obtained. Dry the mass by a gentle heat, and pass through a sieve, so as to get uniform grains.

A white grain, deliquescent in the air ; slowly soluble in water, evolving carbon dioxide, and showing an acid reaction.

An aqueous solution (1 : 50) of Effervescent Magnesium Citrate should not be affected by hydrogen sulphide water.

Mix the same solution with an excess of ammonium chloride solution, and supersaturate it with ammonia water; the resulting solution should be rendered not more than opalescent by ammonium oxalate solution. The same solution, acidified with nitric acid, should be rendered not more than opalescent by barium nitrate solution, or by silver nitrate solution.

Mix a saturated, aqueous solution of Effervescent Magnesium Citrate with potassium acetate solution and a small quantity of acetic acid; no crystalline precipitate should be obtained.

Preserve it in well-stoppered bottles.

O MAGNESIUM SULFURICUM.

Magnesium Sulphate. *Epsom Salt.*

$MgSO_4+7H_2O=246,49$

Small, colorless, rhombic prisms, with a cooling, saline, bitter taste; almost permanent in the air; soluble in an equal part of water, and in 0,3 parts of boiling water, showing a neutral reaction, but insoluble in alcohol.

An aqueous solution of Magnesium Sulphate, when mixed with ammonium chloride solution and ammonia water, yields, with sodium phosphate solution, a white crystalline precipitate.

The same solution yields, with barium nitrate solution, a white precipitate, insoluble in diluted acids.

Triturate 2 g of the salt with 2 g of burnt marble, previously disintegrated with a small quantity of water, pour a mixture of 10 ccm each of alcohol and water, and set aside for 2 hours with frequent shaking. Then add 40 ccm of absolute alcohol, and filter; 20 ccm of the filtrate should acquire, on the addition of 2 ccm of turmeric tincture, no reddish-brown coloration.

Mix 1 g of the powdered salt with 3 ccm of stannous chloride solution; no dark color should be produced within 1 hour.

An aqueous solution (1 : 20) of the salt should not affect the color of litmus papers. The same solution should not be affected by hydrogen sulphide water, nor should it be rendered any more than opalescent after 5 minutes by silver nitrate solution.

20 ccm of an aqueous solution (1 : 20) of the salt should give no blue color with 0,5 ccm of potassium ferrocyanide solution.

MANNA.

Manna.

The naturally dried exudation from the wounds on the bark of Fraxinus Ornus *L.*

In round, flat or canaliculate, crystalline masses; externally light yellowish, and internally whitish; taste sweet; odor slight; easily soluble in water.

Boil 2 g of Manna with 2 ccm of water and 40 ccm of alcohol under reflux condenser for 1 hour, filter the boiling solution through purified cotton, and wash the residue with 10 ccm of boiling alcohol; the filtrate, when evaporated and dried at 100°, should leave at least 1,5 g of residue.

When dried at 100°, Manna should lose not more than 10 per cent. of its weight. On incineration, Manna should leave not more than 3 per cent. of solid residue.

MEL.

Honey.

When fresh, a viscid, translucent liquid, almost colorless or of a light yellowish or brownish-yellow color, which gradually deposits crystalline grains; odor characteristic, agreeable; taste characteristic, agreeable, and very sweet.

Honey shows a slightly acid reaction, and exhibits, when examined under the microscope, crystals of sugar, and, in most cases, pollen grains.

A solution of 1 part of Honey in 2 parts of water should have a specific gravity, at least, of 1,111; the same aqueous solution, after being filtered, should produce no more than a slight turbidity with silver nitrate solution, or with barium nitrate solution, and should immediately change the color with an equal volume of ammonia water.

To 15 ccm of an aqueous solution (1 : 3) of Honey, heated on a water bath, add 0,5 ccm of tannic acid solution, and filter after cooling; 1 ccm of the clear filtrate, when mixed with 10 ccm of absolute alcohol, to which 2 drops of fuming hydrochloric acid have been added, should produce no turbidity.

10 g of Honey, diluted with 5 times its volume of water, should require for neutralization not more than 0,5 ccm of normal potassium hydroxide volumetric solution (Indicator : Phenolphthalein solution).

On incineration, it should leave not more than 0,4 per cent. of solid residue.

MEL DEPURATUM.

Purified Honey.

Honey	40 *pts.*
Distilled Water	60 *pts.*
White Bole, *previously freed from iron compounds by treating with hydrochloric acid*	3 *pts.*

Mix them, heat on a water bath for 30 minutes, and allow the mixture to settle. Then filter the warm liquid, and evaporate as quickly as possible on a water bath to make its specific gravity 1,33.

Purified Honey is a clear, thick liquid of an agreeable odor and a yellow or brownish color.

1 part of Purified Honey, when mixed with 1 part of ammonia water, should produce no change of color, and, when mixed with 2 parts of alcohol, should not become turbid.

When 1 part of Purified Honey is mixed with 2 parts of water, a clear solution should be obtained, which produces any more than an opalescence neither with silver nitrate solution, nor with barium nitrate solution.

10 g of Purified Honey, diluted with 5 times its volume of water,

should require for neutralization not more than 0,4 ccm of normal potassium hydroxide volumetric solution (Indicator : Phenolphthalein solution).

On incineration, it should leave not more than 0,4 per cent. of solid residue.

Preserve it in well-stoppered bottles, in a cool place.

MENTHOLUM.

Menthol.

$C_{10}H_{20}O = 156,21$

Colorless, acicular crystals, with a characteristic, penetrating odor and a burning taste, followed by a cooling sensation; sparingly soluble in water, showing a neutral reaction, and readily soluble in alcohol, ether, and in chloroform. Melting point : about 43°. Boiling point : 212°.

1 part of Menthol, when mixed with 40 parts of sulphuric acid, should produce a turbid, brownish-red liquid, which, after 24 hours, separates a clear, colorless, oily layer having no odor of menthol.

Add Menthol to a mixture of 1 ccm of glacial acetic acid, 6 drops of sulphuric acid, and 1 drop of nitric acid ; no coloration should be produced.

When evaporated on a water bath, Menthol should leave not more than 0,1 per cent. of solid residue.

Preserve it in well-stoppered bottles.

METHYLENUM COERULEUM.

Methylene Blue.

$C_{16}H_{18}N_3ClS + 3H_2O = 373,82$

Dark green, prismatic crystals, having a lustre resembling bronze, or a dark green, crystalline powder; soluble in water, and in alcohol, producing a blue color.

The addition of potassium hydroxide solution to an aqueous solution of Methylene Blue produces, after a short time, a precipitate, having a dark violet color.

A solution of Methylene Blue in diluted sulphuric acid is gradually decolorized by the addition of zinc powder, and the filtrate recovers its blue color in the air.

On dissolving Methylene Blue in alcohol, not more than 1 per cent. of insoluble residue should be obtained.

On incinerating 1 g of Methylene Blue, not more than 0,01 g of solid residue should be obtained. Dissolve the residue in diluted hydrochloric acid, and filter; the filtrate should be affected neither by hydrogen sulphide water, nor by ammonium sulphide, after making alkaline with ammonia water.

Incinerate a mixture of 1 g of Methylene Blue, 2 g of potassium nitrate and 1,5 g of exsiccated sodium carbonate, dissolve the resulting, white fused mass, when cold, in 30 ccm of diluted sulphuric acid, and evaporate the solution until nitric acid is expelled. Dissolve the residue in 15 ccm of water, and add 3 ccm of stannous chloride solution ; a dark color should not be produced within 1 hour.

METHYLSULFONALUM.

Methylsulphonal.

$C_8H_{18}O_4S_2 = 242,3$

Colorless, lustrous, odorless, crystalline scales; soluble in 320 parts of water, and in about 25 parts of boiling water, showing a neutral reaction, readily soluble in alcohol, and in ether. Melting point : 76°.

Methylsulphonal, when heated with powdered charcoal in a test tube, evolves the odor of mercaptan.

1 part of Methylsulphonal, when dissolved in 50 parts of boiling water, should develop no odor ; the solution, filtered after cooling, should

not be affected by barium nitrate solution, or by silver nitrate solution. 10 ccm of the same solution, when mixed with 1 drop of potassium permanganate solution, should produce no immediate decolorization.

On incineration, it should leave not more than 0,1 per cent. of solid residue.

Preserve it with care.

Maximum dose at a time: 1 g.
Maximum dose for a day: 3 g.

MINIUM.

Red Lead.

A red, heavy powder, insoluble in water.

Red Lead, when heated with hydrochloric acid, evolves chlorine, and produces a white, crystalline substance.

Triturate 5 g of Red Lead with 1 g of oxalic acid, throw the mixture into 20 ccm of boiling nitric acid, and gradually add 50 ccm of boiling water; a clear solution should be produced, and the insoluble substance, if any, should weigh not more than 0,07 g.

Preserve it with care.

O MORPHINUM HYDROCHLORICUM.

Morphine Hydrochloride.

$C_{17}H_{19}NO_3.HCl + 3H_2O = 375,76$

White, acicular, silky crystals, usually in bundles, or white, cubical masses; soluble in 25 parts of water, and in 50 parts of alcohol, showing a neutral reaction, but insoluble in ether.

Hydrochloric acid, when add to a cold, saturated, aqueous solution of Morphine Hydrochloride, produces a crystalline precipitate.

Silver nitrate solution, when added to an aqueous solution of the salt, produces a white, curdy precipitate, insoluble in diluted nitric acid.

Add 1 drop of ferric chloride solution to 5 ccm of an aqueous solution (1 : 50) of the salt; a blue color is produced.

Dissolve a small crystal of the salt in 5 drops of sulphuric acid in a dry test tube, warm for 15 minutes in a water bath, and, after cooling, add a trace of nitric acid; a blood-red color is produced.

To sulphuric acid add a mixture of 1 part of the salt and 4 parts of sugar; a red color is produced, which becomes distinct on the further addition of 1 drop of bromine water.

Triturate a small crystal of the salt with sulphuric acid, containing in each ccm 1 drop of formaline; a red color is produced, which changes after a short time to purple and then to blue.

1 drop of potassium carbonate solution, when added to 5 ccm of an aqueous solution (1 : 30) of the salt, produces, immediately or after a few seconds, a pure white, crystalline precipitate, which should give no color on exposure to the air, nor should color chloroform reddish when shaken with it.

1 drop of ammonia water, when added to 5 ccm of an aqueous solution (1 : 30) of the salt, produces a pure white, crystalline precipitate, which should dissolve easily and colorlessly or almost colorlessly in sodium hydroxide solution, but somewhat difficultly in an excess of ammonia water, and in lime water. Shake the solution of the salt in sodium hydroxide solution with an equal volume of ether, separate the clear, ethereal solution, and evaporate; no weighable residue should be obtained.

An aqueous solution (1 : 30) of the salt should not be rendered turbid by barium nitrate solution.

Triturate 0,1 g of the salt with 2 ccm of sulphuric acid; the salt should dissolve without coloration or only with a slightly reddish color.

When dried at 100°, the salt should lose not more than 14,4 per cent. of its weight, and the dried salt should be pure white, or very faintly yellowish.

On incineration, the salt should leave not more than **0,1** per cent. of solid residue.

Preserve it with special care.

Maximum dose at a time: 0,03 g.
Maximum dose for a day: 0,1 g.

MORPHINUM SULFURICUM.

Morphine Sulphate.

$(C_{17}H_{19}NO_3)_2.H_2SO_4+5H_2O=758,65$

Colorless or white, acicular crystals, having a silky lustre; soluble in 24 parts of water, and in 700 parts of alcohol, showing a neutral reaction, but insoluble in ether.

An aqueous solution of Morphine Sulphate, when mixed with barium nitrate solution, yields a white precipitate insoluble in diluted acids.

An aqueous solution (1 : 30) of the salt, acidified with diluted nitric acid, should not be rendered turbid by silver nitrate solution.

When dried at 130°, the salt should lose not more than 11,9 per cent. of its weight.

In other respects, it should conform to the tests described under *Morphinum hydrochloricum.*

Preserve it with special care.

Maximum dose at a time: 0,03 g.
Maximum dose for a day: 0,1 g.

MOSCHUS.

Musk.

The secretion from the preputial follicles of Moschus moschiferus *L.* When fresh, a somewhat unctuous mass, but, when dried, a granular mass, of a dark brown or dark reddish-brown color ; having a characteristic, penetrating, persistent odor.

When moistened with turpentine oil, and examined under the microscope, Musk should consist of almost uniform, semi-transparent, brown pieces or masses, free from other impurities.

It should have, if any, no more than a faint ammoniacal odor.

On incineration, it should leave not more than 8 per cent. of solid residue.

MUCILAGO GUMMI ARABICI.

Mucilage of Gum Arabic.

Gum Arabic	1 *pt.*
Distilled Water	2 *pts.*

Rapidly rinse the gum with a little distilled water, then dissolve it in distilled water, and strain.

Preserve it in a cool place, but not for a long time.

MUCILAGO SALEP.

Mucilage of Salep.

Salep, *in medium powder*	1 *pt.*
Distilled Water	99 *pts.*

Pour 9 parts of distilled water on the drug, mix them by shaking, then add 90 parts of boiling distilled water, and shake the mixture until it cools.

Prepare it when wanted for use.

MUCILAGO TRAGACANTHAE.

Mucilage of Tragacanth.

Tragacanth	1 *pt.*
Glycerin	5 *pts.*
Lukewarm Distilled Water	94 *pts.*

Triturate them.

MYRRHA.

Myrrh.

A gum-resin obtained from various species of Commiphora.

Yellowish, reddish or brown, granular or irregular tears or masses; often internally, here and there, with whitish spots; translucent when broken into small pieces; having a characteristic, aromatic odor, and an aromatic, bitter, acrid taste; adhering to teeth when chewed.

When triturated with water, Myrrh yields a yellow emulsion.

Shake 1 g of powdered Myrrh with 3 ccm of ether, filter, and evaporate the yellow filtrate; the residue acquires a pink-violet color when brought in contact with vapor of fuming nitric acid.

The residue, obtained by completely extracting Myrrh with boiling alcohol, and dried at 100°, should weigh not more than 70 per cent.

On incineration, it should leave not more than 6 per cent. of solid residue.

NAPHTHALINUM.

Naphthalene.

$C_{10}H_8 = 128,11$

Colorless, shining laminae, having a characteristic, penetrating odor and a burning taste. Melting point: 80°.

Naphthalene volatilizes slowly at ordinary temperature, and its vapor is inflammable, burning with a luminous but smoky flame. Very soluble in boiling alcohol, ether, chloroform, and in carbon disulphide ; insoluble in water, but when boiled with it, the water acquires very slightly aromatic odor and taste.

Naphthalene should be insoluble in sodium hydroxide solution. When boiled with water, the latter should not redden a blue litmus paper.

Shake 0,5 g of Naphthalene with 5 ccm of sulphuric acid, and allow it to stand for 5 minutes; the acid should acquire, if any, only a faintly reddish tint, which remains the same, even when heated for 5 minutes on a water bath.

On incineration, it should leave not more than 0,1 per cent. of solid residue.

NAPHTHOLUM. *Beta-Naphtholum.*

Naphthol. *Betanaphthol.*

$C_{10}H_8O = 144,11$

Colorless, shining, crystalline laminae, or a white, crystalline powder; having a faint phenol-like odor and a sharp, pungent taste ; difficultly soluble in water, but soluble in about 100 parts of boiling water, showing a nearly neutral reaction, easily soluble in alcohol, ether, chloroform, and in sodium hydroxide solution. Melting point : 122°. Boiling point : 286°.

An aqueous solution of Naphthol, when mixed with ammonia water, exhibits a violet fluorescence, while with chlorine water, produces a white turbidity, but becomes clear again, when an excess of ammonia water is added, acquiring at first a green color, which afterwards changes to brown.

An aqueous solution of Naphthol separates, on the addition of ferric chloride solution, a white, flocculent precipitate after a short time.

1 part of Naphthol should dissolve in 50 parts of ammonia water

without leaving any residue, and the solution should have not more than a slightly pale yellow color.

A boiling, saturated, aqueous solution of Naphthol should acquire no violet color with ferric chloride solution.

On incineration, it should leave not more than 0,1 per cent. of solid residue.

Preserve it protected from light.

NATRIUM ACETICUM.

Sodium Acetate.

$NaC_2H_3O_2 + 3H_2O = 136,08$

Colorless, odorless, trasparent crystals, efflorescent in dry air; soluble in 1 part of water, showing a slightly alkaline reaction, also in 23 parts of alcohol, and in 1 part of boiling alcohol.

When heated, Sodium Acetate first dissolves in its water of crystallization, then becomes a white, dry mass, which melts again on heating more strongly.

When heated to redness, it carbonizes, emitting the odor of acetone, and the resulting solid residue imparts a yellow color to a non-luminous flame, and intensely turns a moistened, red litmus paper blue.

An aqueous solution of the salt produces, with ferric chloride solution, a dark red color.

An aqueous solution (1 : 20) of the salt should not be affected by hydrogen sulphide water, ammonium sulphide, barium nitrate solution, or by ammonium oxalate solution.

The same solution, mixed with an equal volume of water and a small quantity of nitric acid, should be rendered not more than slightly turbid by silver nitrate solution.

20 ccm of the same solution should acquire no blue color with 0,5 ccm of potassium ferrocyanide solution.

Preserve it in well-stoppered bottles.

NATRIUM BENZOÏCUM.

Sodium Benzoate.

$NaC_7H_5O_2 = 144,08$

A white, amorphous or crystalline powder; soluble in 2 parts of water, and in 50 parts of alcohol.

When heated, Sodium Benzoate melts, then chars, and finally leaves a residue, which reacts alkaline, and imparts a yellow color to a non-luminous flame.

An aqueous solution of the salt yields, with ferric chloride solution, a light reddish-brown precipitate.

Weakly heat 0,1 g of the salt, dissolve the resulting residue in 30 ccm of water, and then filter; the filtrate, acidified with nitric acid, should be rendered not more than opalescent by silver nitrate solution.

0,1 g of the salt should dissolve in 1 ccm of sulphuric acid without effervescence or coloration.

An aqueous solution (1 : 20) of the salt should be hardly affected by barium nitrate solution.

Weakly heat 1 g of the salt, and treat the residue with boiling water; the solution should require for neutralization 13,7–13,9 ccm of half-normal hydrochloric acid volumetric solution (Indicator : Methyl orange solution).

○ NATRIUM BICARBONICUM.

Sodium Bicarbonate.

$NaHCO_3 = 84,01$

White, crystalline masses or powder, permanent in the air; soluble in 12 parts of water, showing a slightly alkaline reaction, but insoluble in alcohol.

When dried over sulphuric acid, it contains not less than 98 per cent. of pure sodium bicarbonate.

When heated, the salt emits carbon dioxide, and leaves a residue, which reacts strongly alkaline, and imparts a yellow color to a non-luminous flame. The salt effervesces with acids.

When heated in a non-luminous flame, and seen through a cobalt glass, no violet-red color should permanently be visible.

On heating 1 g of the salt in a test tube, no odor of ammonia should be evolved.

An aqueous solution (1 : 50) of the salt, acidified with acetic acid, should produce no change with hydrogen sulphide water, nor should it produce, with barium nitrate solution, any more than an opalescence within 2 minutes.

An aqueous solution (1 : 50) of the salt, acidified with nitric acid, should remain clear, and should produce, with silver nitrate solution, no more than an opalescence after 10 minutes; the same aqueous solution should produce no red color with ferric chloride solution.

Dissolve 1 g of the salt, without strongly shaking, in 20 ccm of water, at a temperature not above 15°, and add 3 drops of phenolphthalein solution; a red color should not appear immediately, and in case when a slightly red coloration is produced, it should disappear by the addition of 0,2 ccm of normal hydrochloric acid volumetric solution.

When heated to redness, the salt, previously dried over sulphuric acid, should leave not more than 63,8 per cent. of solid residue.

O NATRIUM BROMATUM.

Sodium Bromide.

$NaBr = 102,92$

A white, slightly hygroscopic, crystalline powder; soluble in 1,2 parts of water, and in 10 parts of alcohol.

It contains not less than 94,3 per cent. of pure sodium bromide.

When heated in a non-luminous flame, Sodium Bromide imparts a yellow color to it.

Mix an aqueous solution of the salt with a little chlorine water, and shake with chloroform; the latter acquires a reddish-brown color.

When heated in a non-luminous flame, and seen through a cobalt glass, no violet-red color should permanently be visible.

When the powdered salt is moistened with 1–2 drops of diluted sulphuric acid in a white porcelain dish, no yellow color should appear at once.

The powdered salt should not immediately turn a moistened, red litmus paper to violet-blue.

Mix 10 ccm of an aqueous solution (1 : 20) of the salt with 2–3 drops of ferric chloride solution and a small amount of starch solution; no blue color should appear within 10 minutes.

An aqueous solution (1 : 20) of the salt should produce no change with hydrogen sulphide water, barium nitrate solution, or with diluted sulphuric acid; after adding ammonia water, the same solution should produce no change with sodium phosphate solution. 20 ccm of the same solution, acidified with 2–3 drops of hydrochloric acid, should acquire no blue color with 0,5 ccm of potassium ferrocyanide solution.

When dried at 100°, it should lose not more than 5 per cent. of its weight.

Dissolve 3 g of the salt, dried at 100°, in water to make the solution measure 100 ccm; 10 ccm of the resulting solution, after being mixed with 1–2 drops of potassium chromate solution, should require, in order to produce a permanent red color, not more than 29,3 ccm of tenth-normal silver nitrate volumetric solution.

Preserve it in well-stoppered bottles.

NATRIUM CARBONICUM.

Sodium Carbonate.

$Na_2CO_3 + 10H_2O = 286,17$

Colorless, transparent crystals; efflorescent in the air; soluble in 1,6 parts of water, and in 0,2 parts of boiling water, showing a strongly alkaline reaction, but insoluble in alcohol.

It contains not less than 37 per cent. of pure sodium carbonate ($Na_2CO_3 = 106,01$).

Sodium Carbonate imparts a yellow color to a non-luminous flame, and dissolves with effervescence in acids.

An aqueous solution (1 : 20) of the salt should not be affected by hydrogen sulphide water; the same solution, supersaturated with acetic acid, should not be affected by hydrogen sulphide water, or by barium nitrate solution. The same solution, acidified with an excess of nitric acid, should be rendered not more than opalescent by silver nitrate solution within 10 minutes.

Mix 2 ccm of an aqueous solution (1 : 20) of the salt, acidified with sulphuric acid, with an equal volume of sulphuric acid, and, after cooling, add 1 ccm of ferrous sulphate solution, so as to form 2 layers of liquids; no brownish zone should appear at the line of contact.

The same acidified solution should not decolorize iodine solution.

When warmed with sodium hydroxide solution, no odor of ammonia should be evolved.

1 g of the salt, dissolved in 50 ccm of water, should require for neutralization at least 7 ccm of normal hydrochloric acid volumetric solution (Indicator : Methyl orange solution).

Preserve it in well-stoppered bottles.

NATRIUM CARBONICUM CRUDUM.

Crude Sodium Carbonate.

Colorless crystals, or crystalline masses; efflorescent in the air; soluble in 2 parts of water, showing a strongly alkaline reaction.

It contains not less than 34,5 per cent. of pure sodium carbonate ($Na_2CO_3 = 106,01$).

It imparts a yellow color to a non-luminous flame, and dissolves with effervescence in acids.

1 g of the salt, dissolved in 50 ccm of water, should require for neutralization at least 6,5 ccm of normal hydrochloric acid volumetric solution (Indicator: Methyl orange solution).

NATRIUM CARBONICUM SICCUM.

Exsiccated Sodium Carbonate.

Reduce sodium carbonate to a coarse powder, and allow it to effloresce completely at a temperature not above 25°, protecting at the same time from dust, then dry it at 40–50°, and, when one half of its weight is lost, pass it through a sieve.

A white, porous powder, which does not stick together even when pressed.

Exiccated Sodium Carbonate contains not less than 74 per cent. of pure sodium carbonate ($Na_2CO_3 = 106,01$).

The salt should conform to the tests for identity and purity under *Natrium carbonicum.*

1 g of the salt, dissolved in 50 ccm of water, should require for neutralization at least 14 ccm of normal hydrochloric acid volumetric solution (Indicator: Methyl orange solution).

Preserve it in well-stoppered bottles.

O NATRIUM CHLORATUM.

Sodium Chloride.

$NaCl = 58{,}46$

White, cubical crystals, or a white, crystalline powder ; having a purely saline taste ; permanent in the air ; soluble in 3 parts of water, showing a neutral reaction, but almost insoluble in alcohol.

Sodium Chloride imparts a yellow color to a non-luminous flame.

An aqueous solution of the salt yields, with silver nitrate solution, a white, curdy precipitate, soluble in ammonia water.

When heated in a non-luminous flame, and seen through a cobalt glass, no violet-red color should permanently be visible.

An aqueous solution (1 : 20) of the salt should not be affected by hydrogen sulphide water, barium nitrate solution, or by diluted sulphuric acid. After the addition of ammonia water, the same solution should not be affected by ammonium oxalate solution, or by sodium phosphate solution.

20 ccm of the same solution should produce no blue color with 0,5 ccm of potassium ferrocyanide solution.

NATRIUM JODATUM.

Sodium Iodide.

$NaJ = 149{,}92$

A white, crystalline powder, having a bitter, saline taste ; deliquescent ; soluble in 0,6 parts of water, and in 3 parts of alcohol.

It contains not less than 95 per cent. of pure sodium iodide.

Sodium Iodide imparts a yellow color to a non-luminous flame.

Add a small quantity of chlorine water to an aqueous solution of he salt, and shake the mixture with chloroform ; the latter acquires a violet color.

When heated in a non-luminous flame, and seen through a cobalt glass, no violet-red color should permanently be visible.

The powdered salt should not immediately turn a moistened, red litmus paper to violet-blue.

An aqueous solution (1 : 20) of the salt should not be affected by hydrogen sulphide water, or by barium nitrate solution.

Gently warm the same solution with a small piece of ferrous sulphate, 1 drop of ferric chloride solution, and a small quantity of sodium hydroxide solution ; the mixture, after cooling, should not be colored blue by the supersaturation with hydrochloric acid.

Dissolve 1 part of the salt in 19 parts of water, freshly boiled and cooled, and add starch solution and diluted sulphuric acid ; no immediate blue coloration should appear.

20 ccm of an aqueous solution (1 : 20) of the salt, acidified with 2–3 drops of hydrochloric acid, should produce no blue color with 0,5 ccm of potassium ferrocyanide solution.

Heat 1 g of the salt with 5 ccm of sodium hydroxide solution and 0,5 g each of zinc and iron powder ; no odor of ammonia should be evolved.

Dissolve 0,2 g of the dried salt in 2 ccm of ammonia water, add 14 ccm of tenth-normal silver nitrate volumetric solution under agitation, and filter ; the filtrate, supersaturated with nitric acid, should neither be rendered turbid, nor be colored within 10 minutes.

When dried at 100°, the salt should lose not more than 5 per cent. of its weight.

Preserve it in well-stoppered bottles.

NATRIUM NITRICUM.

Sodium Nitrate.

$NaNO_3 = 85,01$

Colorless, transparent crystals, or a white, crystalline powder; having a cooling, slightly bitter taste; of hygroscopic nature; soluble in 1,3 parts of water, and in 50 parts of alcohol, showing a neutral reaction.

Mix an aqueous solution of Sodium Nitrate with ferrous sulphate solution, and add sulphuric acid; a blackish-brown color appears.

The salt imparts a yellow color to a non-luminous flame.

When heated in a non-luminous flame, and seen through a cobalt glass, no violet-red color should permanently be visible.

An aqueous solution (1 : 20) of the salt should not be affected by hydrogen sulphide water, and, after the addition of ammonia water, by ammonium oxalate solution, or by sodium phosphate solution; the same solution should not be affected, within 5 minutes, by silver nitrate solution, or by barium nitrate solution.

Add diluted sulphuric acid and zinc iodide and starch solution to 5 ccm of an aqueous solution (1 : 20) of the salt; the latter should not be immediately colored blue.

Add a small quantity of chlorine water to the same solution, and shake it with chloroform; the latter should acquire no violet color.

10 ccm of an aqueous solution (1 : 20) of the salt should not be colored blue by 0,2 ccm of potassium ferrocyanide solution.

Preserve it in well-stoppered bottles.

NATRIUM PHOSPHORICUM.

Sodium Phosphate.

$Na_2HPO_4 + 12H_2O = 358,24$

Colorless, transparent crystals, efflorescent in dry air ; soluble in 7 parts of water, showing an alkaline reaction. The salt fuses at 40°.

The salt imparts a yellow color to a non-luminous flame.

An aqueous solution of the salt yields, with silver nitrate solution, a yellow precipitate, which is soluble both in nitric acid and in ammonia water, and which does not turn brown on warming.

When the salt is heated in a non-luminous flame, and seen through a cobalt glass, no violet-red color should permanently be visible.

A mixture of 1 g of the salt, previously dehydrated and powdered, and 3 ccm of stannous chloride solution should assume no dark color within 1 hour.

An aqueous solution (1 : 20) of the salt should not be affected by hydrogen sulphide water ; the same solution, when acidified with nitric acid, should produce no effervescence, nor the acidified solution should be rendered any more than opalescent after 3 minutes by barium nitrate solution, or by silver nitrate solution. 20 ccm of the same solution should not be affected by 0,5 ccm of potassium ferrocyanide solution.

On heating 1 g of the salt to redness, 0,37–0,38 g of a white residue should be obtained.

Preserve it in well-stoppered bottles.

O NATRIUM SALICYLICUM.

Sodium Salicylate.

$NaC_7H_5O_3 = 160,08$

White, odorless scales, or crystalline powder; having a sweetish, saline taste; soluble in 1 part of water, and in 6 parts of alcohol.

When heated in a test tube, Sodium Salicylate carbonizes, evolving white vapors; the residue dissolves with effervescence in acids, and imparts a yellow color to a non-luminous flame.

An aqueous solution of the salt yields, with hydrochloric acid, white crystals, easily soluble in ether.

Add ferric chloride solution to a diluted aqueous solution (1 : 1000) of the salt; a violet color is produced.

An aqueous solution (1 : 5) of the salt should be colorless, or slightly yellowish, and should it be, if any, not more than slightly acid.

0,1 g of the salt should dissolve in 1 ccm of sulphuric acid with no effervescence, and almost without coloration.

An aqueous solution (1 : 20) of the salt should not be affected by hydrogen sulphide water, or by barium nitrate solution; 2 volumes of the same solution, when mixed with 3 volumes of alcohol and acidified with nitric acid, should be rendered not more than opalescent by the addition of silver nitrate solution.

Heat 1 g of the salt weakly, and extract the residue with boiling water; the resulting solution should require for neutralization at least 12,4 ccm of half-normal hydrochloric acid volumetric solution (Indicator: Methyl orange solution).

Preserve it in well-stoppered bottles.

NATRIUM SULFOCARBOLICUM.

Sodium Phenolsulphonate.

$NaC_6H_5O_4S + 2H_2O = 232{,}19$

Colorless, transparent prisms, odorless or almost odorless, but with a cooling, slightly bitter taste ; soluble in 6 parts of water, showing a neutral or almost neutral reaction, and in 150 parts of alcohol.

When heated, Sodium Phenolsulphonate carbonizes, emitting an odor of carbolic acid, and finally leaves a solid residue, which imparts a yellow color to a non-luminous flame.

A diluted aqueous solution of the salt acquires a violet color with ferric chloride solution.

An aqueous solution (1 : 20) of the salt should not be affected by hydrogen sulphide water, ammonium sulphide, or by diluted sulphuric acid ; the same solution should be rendered not more than opalescent by barium nitrate solution, or by silver nitrate solution.

On heating 1 g of the salt to redness, about 0,3 g of solid residue should be obtained.

When dried at 125°, the salt should lose about 15 per cent. of its weight.

Preserve it in well-stoppered bottles.

NATRIUM SULFURICUM.

Sodium Sulphate. *Glauber's Salt.*

$Na_2SO_4 + 10H_2O = 322{,}22$

Colorless crystals, having a cooling, saline, slightly bitter taste ; efflorescent in dry air ; soluble in 3 parts of cold water, 0,3 parts of water at 33°, and in 0,4 parts of water at 100°, showing a neutral reaction, but insoluble in alcohol. When heated, the crystals melt easily.

Sodium Sulphate imparts a yellow color to a non-luminous flame.

An aqueous solution of the salt yields, with barium nitrate solution, a white precipitate, insoluble in diluted acids.

On mixing 1 g of the salt, previously dehydrated and powdered, with 3 ccm of stannous chloride solution, no dark color should be produced within 1 hour.

An aqueous solution (1 : 20) of the salt should not be affected by hydrogen sulphide water, or, after adding ammonia water, by sodium phosphate solution; the same solution should not be affected by silver nitrate solution within 5 minutes. 20 ccm of the same solution should not be affected by 0,5 ccm of potassium ferrocyanide solution.

On heating the salt with sodium hydroxide solution, no odor of ammonia should be evolved.

Mix 2 ccm of an aqueous solution (1 : 20) of the salt with an equal volume of sulphuric acid, and, after cooling, add 1 ccm of ferrous sulphate solution, so as to form 2 layers of liquids; no brownish zone should be formed at the line of contact.

Preserve it in well-stoppered bottles.

NATRIUM SULFURICUM SICCUM.

Exsiccated Sodium Sulphate.

Allow the coarsely powdered sodium sulphate to effloresce completely at a temperature not above 25°, then dry it at 40-50°, and, when one half of its weight is lost, pass it through a sieve.

A white, porous powder, not sticking together even when pressed.

On heating weakly, the salt should lose not more than 11,4 per cent. of its weight.

In other respects the salt should conform to the tests under *Natrium sulfuricum*, an aqueous solution (1 : 40) being used.

Preserve it in well-stoppered bottles.

NATRIUM THIOSULFURICUM.

Sodium Thiosulphate. *Sodium Hyposulphite.*

$Na_2S_2O_3+5H_2O=248,2$

Colorless, transparent crystals ; odorless ; soluble in about 1 part of water, showing a neutral reaction.

When heated to about 50°, it melts in its water of crystallization.

The salt imparts a yellow color to a non-luminous flame.

The addition of hydrochloric acid to an aqueous solution of the salt liberates sulphur dioxide, and the solution is rendered turbid after a short time.

The addition of ferric chloride solution to an aqueous solution of the salt produces a dark violet color, which disappears gradually upon agitation.

An aqueous solution (1 : 20) of the salt should not be rendered turbid by ammonium oxalate solution, nor should it produce any brown or black precipitate with 1 drop of silver nitrate solution. 10 ccm of the same solution should not be rendered turbid by 0,5 ccm of barium nitrate solution.

On adding iodine solution to an aqueous solution (1 : 20) of the salt until a permanent yellowish color is produced, the resulting solution should not redden a blue litmus paper.

Preserve it in well-stoppered bottles.

NATRUM CAUSTICUM.

Sodium Hydroxide.

Dry, white masses or sticks, showing a crystalline fracture ; strongly caustic ; deliquescent in the air ; easily soluble in water.

It contains not less than 90 per cent. of pure sodium hydroxide ($NaOH=40,01$.

It imparts a yellow color to a non-luminous flame.

An aqueous solution of Sodium Hydroxide should not be affected by an excess of tartaric acid solution.

Dissolve 1 g of Sodium Hydroxide in 2 ccm of water, and add 10 ccm of alcohol; not more than a very slight precipitate should be produced after a short time.

Dissolve 1 g of Sodium Hydroxide in 10 ccm of water, boil the solution with 20 ccm of lime water, and then filter; the filtrate should, on being poured into an excess of hydrochloric acid, produce no effervescence.

Mix 2 ccm of sulphuric acid with 5 ccm of the diluted sulphuric acid solution (1 : 20) of Sodium Hydroxide, and then add, after cooling, 1 ccm of ferrous sulphate solution, so as to form 2 separate layers of liquids; no brownish zone should appear at the line of contact.

An aqueous solution (1 : 50) of Sodium Hydroxide, acidified with nitric acid, should not be immediately affected by barium nitrate solution, nor should it be rendered any more than opalescent by silver nitrate solution.

Dissolve 4 g of Sodium Hydroxide in sufficient water to make the solution measure 100 ccm; 10 ccm of the resulting solution should require for neutralization at least 9 ccm of normal hydrochloric acid volumetric solution (Indicator: Methyl orange solution).

Preserve it with care, in well-stoppered bottles.

OLEUM AMYGDALARUM.

Almond Oil.

A fixed oil obtained by expression from the bitter or sweet almond. A clear, light yellow liquid, almost odorless, and having a bland taste. Specific gravity: 0,915–0,920. Iodine value: 93–100.

Almond Oil should be free from rancid odor or taste, nor should it congeal even when cooled to –10°.

Vigorously shake 2 ccm of the oil with a mixture of 1 ccm each of fuming nitric acid and water at 10°; a whitish mixture with no red or brownish color should be formed, which, after standing for 2–6 hours, separates into a white, solid mass and an almost colorless liquid.

Mix 10 ccm of the oil with 15 ccm of sodium hydroxide solution and 10 ccm of alcohol, allow the mixture to stand at 35–40°, until it becomes clear, and dilute it with 100 ccm of water; a clear solution should be obtained. Add an excess of hydrochloric acid to the solution, separate the oily liquid, wash it with warm water, and allow it to clarify by heating on a water bath; it should remain in an oily state at 15°. 1 volume of the liquid should dissolve clearly in 1 volume of alcohol, and the solution should deposit no solid fatty acid if cooled to 15°, nor should it become turbid upon the further dilution with 1 volume of alcohol.

The oil may be used as a substitute for *Oleum Pruni armeniacae.*

OLEUM ARACHIDIS.

Arachis Oil.

A fixed oil obtained by expression in the cold from the husked seeds of Arachis hypogaea *L.*

A yellowish, odorless liquid, having a bland taste. Specific gravity: 0,916–0,921. Iodine value: 83–100. Saponification value: 188–196,6. Degrees of acidity: not more than 7,5.

Shake 5 ccm of the oil with an equal volume of hydrochloric acid, then add 0,5 g of white sugar, and shake again; no pink color should be produced.

Mix 5 ccm of the oil with 5 ccm each of amyl alcohol and carbon disulphide solution (1 : 100) of sulphur, and heat for 15 minutes on a water bath under a reflux condenser; no reddish color should be produced. Again add 5 ccm of the carbon disulphide solution (1 : 100) of sulphur, and heat for further 15 minutes; no reddish color should be produced.

OLEUM AURANTII CORTICIS.

Oil of Orange Peel.

A volatile oil obtained from the peel of the several species of Citrus.

A colorless or yellowish, thin liquid, baving a characteristic, aromatic odor and a somewhat bitter taste ; not clearly miscible with an equal part of alcohol. Specific gravity : 0,85–0,86. Optical rotation (αD25°) : not less than +94°.

OLEUM AURAUTII FLORUM.

Oil of Orange Flowers.

A volatile oil obtained by steam distillation from the fresh flowers of the several species of Citrus.

A yellow or brownish-yellow, thin liquid, showing a neutral reaction ; odor agreeable ; clearly miscible with 1–2 parts of alcohol. Specific gravity : 0,86–0,88. Optical rotation (αD25°) : +1,5° to +5°.

Add a small quantity of alcohol to the oil, so as to form 2 layers of liquids ; a beautiful, violet fluorescence appears on agitation.

Shake the oil with concentrated solution of sodium bisulphite ; a red color is produced.

OLEUM BERGAMOTTAE.

Bergamot Oil.

A volatile oil obtained by expression from the fresh peel of Citrus Bergamia *Risso et Poiteau.*

A greenish or greenish-yellow, thin liquid, having a pleasant odor and an aromatic, bitter taste ; showing a neutral or slightly acid reaction ;

miscible in all proportions with glacial acetic acid. Specific gravity : 0,880–0,886. Optical rotation (αD25°) : +8° to +24°.

On mixing 2 volumes of Bergamot Oil with 1 volume of alcohol, a clear solution should be obtained, which, on the further addition of a large quantity of alcohol, is not rendered turbid.

1 volume of the oil should dissolve at 20° in 1,5–2 volumes of a mixture of 80 ccm of alcohol and 10 ccm of water clearly or only with a turbidity, but without separation of oil globules.

On evaporating 2 g of the oil on a water bath, until its odor ceases to be recognized, not more than 6 per cent. of a soft, green, homogeneous substance should be left behind.

Evaporate 2 ccm of the oil to dryness with 10 ccm of alcoholic potassium hydroxide solution, incinerate the residue, dissolve in water, and acidify with diluted nitric acid ; the resulting solution should not be rendered turbid by silver nitrate solution.

Mix 1 ccm of the oil with 5 ccm of water and 5 drops of acetic acid ; the resulting solution should acquire no more than a slight coloration with hydrogen sulphide water.

Heat 2 g of the oil on a water bath under a reflux condenser for 30 minutes with 20 ccm of half-normal alcoholic potassium hydroxide volumetric solution, then add 100 ccm of water to the solution, and titrate the excess of potassium hydroxide with half-normal hydrochloric acid volumetric solution ; not more than 12,6 ccm of the latter should be required for neutralization (Indicator : Methyl orange solution).

Preserve it in well-stoppered bottles, in a cool place, protected from light.

O OLEUM CACAO.

Oil of Theobroma. *Cacao Butter.*

A fat obtained by expression from the peeled seeds of Theobroma Cacao *L.*

A faintly yellowish solid, having a faint, characteristic odor and a mild taste; hard and brittle at 15°, and melting at 30–34° to a clear liquid. Iodine value: 34–38. Degrees of acidity: not more than 5.

The oil should have no rancid odor.

A solution of 1 part of the oil in 2 parts of ether should not become turbid within 1 day at ordinary temperature.

OLEUM CAJEPUTI.

Oil of Cajuput.

A volatile oil obtained by steam distillation from the leaves of Melaleuca Leucadendron *L.*

A colorless, or light yellow, or greenish, thin liquid, having a camphoraceous, penetrating odor; showing a neutral or slightly acid reaction; clearly miscible in all proportions with alcohol. Specific gravity: 0,91–0,93. Optical rotation (αD20°): not more than −4°.

Gradually add 1 g of iodine to 5 ccm of Oil of Cajuput, and cool; a crystalline mass results.

On shaking with an equal volume of sodium hydroxide solution, the oil should remain almost undissolved.

Shake 1 ccm of the oil with 20 ccm of water and 1 drop of acetic acid; the resulting mixture should produce no coloration with 1 drop of potassium ferrocyanide solution.

OLEUM CAMPHORATUM.

Camphorated Oil.

Purified Camphor	1 *pt.*
Olive Oil	4 *pts.*

Dissolve purified camphor in olive oil, and filter.

A clear, light greenish or yellow liquid, having an odor of camphor.

OLEUM CANTHARIDATUM.

Oil of Cantharides.

Cantharides, *in medium powder*	3 *pts.*
Olive Oil	10 *pts.*

Introduce cantharides and olive oil into a flask, stopper it tightly, and warm on a water bath with occasional shaking for 10 hours. Press, and filter the resulting oil.

A greenish-yellow liquid.

OLEUM CARYOPHYLLORUM.

Oil of Cloves.

A volatile oil obtained by steam distillation from cloves.

A clear, colorless or yellowish, somewhat thick liquid, gradually becoming brown in the air ; having a characteristic odor ; sparingly miscible with water, readily miscible with alcohol, ether, and with glacial acetic acid. Specific gravity : 1,044–1,070. Optical rotation (αD20°) : not more than –1,25°.

Strongly shake 5 drops of Oil of Cloves with 10 ccm of lime water ; the mixture separates into a soft, flocculent, crystalline mass and a yellow liquid.

A solution of 2 drops of the oil in 4 ccm of alcohol yields, with 1 drop of ferric chloride solution, a green color.

Shake 1 g of the oil with 20 ccm of boiling water, and filter ; the filtrate should show a neutral reaction, and should yield, with 1 drop of ferric chloride solution, a grayish-green color, but not a blue color.

Shake 1 ccm of the oil with 5 ccm of diluted acetic acid, and filter ; the filtrate should be not more than slightly colored by hydrogen sulphide water.

1 ccm of the oil should be clearly miscible with 2 ccm of diluted alcohol.

Warm 10 ccm of the oil with 40 ccm of potassium hydroxide solution on a water bath for 15 minutes with frequent shaking ; not more than 1,5 ccm of oil should separate.

OLEUM CHLOROFORMII.

Chloroform Oil.

Chloroform	1 *pt.*
Olive Oil	1 *pt.*

Mix them.

A clear, yellow liquid, with an odor resembling chloroform.

OLEUM CINNAMOMI.

Oil of Cinnamon. *Cassia Oil.*

A volatile oil obtained by steam distillation from cassia bark.

A clear, yellow or brownish, somewhat thick liquid, having a characteristic, aromatic odor and a burning, sweet taste, and showing a slightly acid reaction ; soluble in 3 parts of diluted alcohol, and clearly miscible in all proportions with alcohol. Specific gravity : 1,055–1,070.

The oil contains not less than 70 per cent. by volume of pure cinnamic aldehyde ($C_9H_8O=132,11$).

4 drops of the oil, when shaken with 4 drops of crude nitric acid, forms, at a temperature not above 5°, a white, crystalline mass.

A solution of 4 drops of the oil in 10 ccm of alcohol should acquire, with a few drops of ferric chloride solution, only a brown color, but not a green or blue color.

A solution of 1 ccm of the oil in 4–5 ccm of diluted alcohol should remain clear, and should produce no precipitate, at ordinary temperature, by the addition of half its volume of a freshly prepared, saturated solution of lead acetate in diluted alcohol.

Add 45 ccm of sodium bisulphite solution to 5 ccm of the oil, and warm on a water bath with occasional shaking ; the solid mass, produced at first, should completely dissolve, and not more than 1,5 ccm of clear oily layer should remain.

When evaporated on a water bath, the oil should leave not more than 8 per cent. of residue.

Shake 1 ccm of the oil with 5 ccm of diluted acetic acid, and filter ; the filtrate, after the addition of 5 ccm of alcohol, should produce no precipitate with hydrogen sulphide.

OLEUM CITRI. *Oleum Limonis.*

Oil of Citron. *Oil of Lemon.*

A volatile oil obtained from the fresh lemon peel.

A light yellow, thin liquid, having a characteristic, aromatic odor and an aromatic, somewhat bitter taste ; clearly or almost clearly miscible with about 12 parts of alcohol. Specific gravity : 0,857–0,861. Optical rotation (αD20°) : +58° to +65°.

OLEUM CROTONIS.

Croton Oil.

A fixed oil obtained by expression from the peeled seeds of Croton Tiglium *L.*

A brownish-yellow, somewhat thick liquid, having a characteristic, disagreeable odor, and showing an acid reaction. Specific gravity : 0,94–0,96.

Warm 1 volume of the oil with 2 volumes of absolute alcohol ; a clear solution should be obtained, which does not deposit oil globules on cooling.

Vigorously shake 2 ccm of the oil with a mixture of 1 ccm each of fuming nitric acid and water; the mixture should neither completely nor partially solidify within 2 days.

Mix 1 drop of the oil with 20 drops of sulphuric acid; a clear, dark brown solution should be obtained.

Ignite a string of twisted paper, moistened with the oil, and blow out; it should emit no odor resembling burning animal fat.

Preserve it with special care, in well-stoppered bottles.

Maximum dose at a time: 0,05 g.
Maximum dose for a day: 0,15 g.

OLEUM EUCALYPTI.

Oil of Eucalyptus.

A volatile oil obtained by steam distillation from the eucalyptus leaves.

A clear, colorless or light yellow, thin liquid, having a characteristic, fragrant odor, and showing a neutral reaction; clearly miscible in all proportions with alcohol. Specific gravity: 0,90–0,93.

Mix 1 ccm of Oil of Eucalyptus with 2 ccm of glacial acetic acid and 2 ccm of a saturated solution of sodium nitrite, and shake gently; the mixture should form no crystals.

Dissolve 10 ccm of the oil in 50 ccm of petroleum ether, and add phosphoric acid (specific gravity: 1,709), drop by drop, at 0°, with stirring, until crystals separate and a yellowish or reddish color develops. Rapidly filter the separated crystals through a dry filter paper, wash them with petroleum ether, and then dry them by pressing between filter papers. Transfer the crystals to a graduated cylinder, and add warm water; the separated oily layer should measure at least 5 ccm at ordinary temperature.

OLEUM FOENICULI.

Oil of Fennel.

A volatile oil obtained by steam distillation from fennel fruit.

A colorless or yellowish liquid having a characteristic, fragrant odor and a slightly sweet taste, with a slightly bitter and camphoraceous after-taste. Specific gravity : 0,965–0,980. Optical rotation ($\alpha D20°$) : not less than +6°.

On cooling to 0°, Oil of Fennel separates white crystals which completely melt again at above 5°.

The oil should dissolve clearly in an equal volume of alcohol, and produce no change on the further addition of 10 volumes of the latter.

OLEUM HYDNOCARPAE.

Hydnocarpus Oil.

A fixed oil obtained by expression from the peeled seeds of Hydnocarpus.

A whitish or yellowish, ointment-like mass, having a faint characteristic odor and a characteristic, fat-like, not acrid taste.

At 22–23°, the oil almost completely liquefies, and at 25–30° it melts completely to a clear liquid. Iodine value : 80–90. Saponification value : 195–215. Degrees of acidity : not less than 7.

Dissolve 5 g of the oil in pure chloroform to make it measure 100 ccm at ordinary temperature ; optical rotation ($\alpha D20°$) of the solution is about +2,4°.

Add 1 drop of sulphuric acid to 5 ccm of a chloroform solution (1 : 10) of the oil, and shake ; a beautiful green color is produced after a short time.

Add 5 drops of a mixture of 1 g of trichloracetic acid and 4 drops of hydrochloric acid to 10 drops of the oil, and warm gently ; a deep blue color should be produced.

Warm the oil with 5 times its volume of absolute alcohol ; a clear solution should be obtained, which deposits a white, crystalline precipitate at ordinary temperature.

O OLEUM JECORIS.

Cod Liver Oil.

A fixed oil obtained from the livers of Gadus macrocephalus *Tilesius*, and of Pollachius Brandti *Jordan et Snyder*

A clear, straw-yellow or golden-yellow liquid, having a weak characteristic odor and a mild taste. Specific gravity : 0,924–0,931. Iodine value : 140–180. Saponification value : 163–190. Degrees of acidity : not more than 3.

Mix 5 drops of the oil with 1 drop of sulphuric acid ; a bluish-violet or violet-red color is produced.

Stir 15 drops of the oil with 3 drops of fuming nitric acid ; the mixture acquires a rose-red or violet-blue color, immediately changing to lemon-yellow or brownish.

The oil should have no disagreeable, rancid odor or taste.

On leaving for about 3 hours at 0°, the oil should remain clear, and deposit no white, solid substance.

A mixture of 1 volume each of the oil and nitric acid and a small quantity of copper filings should remain in a clear, liquid state for a long time.

Shake 1 ccm of the oil with 5 ccm of diluted acetic acid, and filter ; the filtrate should not be affected by hydrogen sulphide water.

OLEUM LAVANDULAE.

Oil of Lavender.

A volatile oil obtained by steam distillation from the lavender flowers.

A colorless or yellowish liquid, having a characteristic, fragrant odor and a somewhat bitter taste. Specific gravity : 0,882–0,900. Optical rotation (αD20°) : –3° to –10°.

1 part of Oil of Lavender should be almost clearly soluble in 3 volumes of diluted alcohol at 20°.

Add 10 ccm of half-normal alcoholic potassium hydroxide volumetric solution to 1 g of the oil, and heat the mixture on a water bath under a reflux condenser for 30 minutes. Dilute it with 100 ccm of water, and titrate the residual alkali with half-normal hydrochloric acid volumetric solution ; not more than 7 ccm of the latter solution should be required for neutralization (Indicator : Methyl orange solution).

OLEUM LINI.

Linseed Oil.

A fixed oil obtained by expression from linseed.

A clear, yellow liquid, having a characteristic odor ; remaining in liquid state even at –20°, but drying when spread and left aside in a thin layer. Specific gravity : 0,93–0,94. Iodine value : 170–190. Degrees of acidity : not more than 3.

Warm a mixture of 10 g of the oil, 15 g of potassium hydroxide solution and 3 g of alcohol on a water bath, and saponify the oil completely ; the soap produced should dissolve in water, and in alcohol, without leaving any residue.

Ignite a string of twisted paper, moistened with the oil, and blow out ; it should emit no odor resembling burning animal fat.

A mixture of 1 volume each of the oil and nitric acid and a small quantity of copper filings, after standing for a long time, should remain in a clear, liquid state.

Shake 1 ccm of the oil with 5 ccm of diluted acetic acid, and filter ; the filtrate, after the addition of 5 ccm of alcohol, should yield, on passing hydrogen sulphide, no precipitate after 3 hours.

Shake the oil with an equal volume of lime water ; a permanent emulsion should be immediately produced.

OLEUM MENTHAE.

Oil of Peppermint.

A volatile oil obtained by steam distillation from the peppermint leaves and freed from the solid ingredient by cooling.

A clear, colorless or yellowish, thin liquid, having a characteristic, penetrating odor, and a burning taste, followed by a sensation of cold ; producing no heat when brought in contact with iodine ; clearly miscible in all proportions with alcohol. Specific gravity : 0,897–0,900. Optical rotation ($\alpha D 25°$) : –20° to –33.

1 ccm of Oil of Peppermint should dissolve clearly in not more than 3,5 ccm of a mixture of 29,5 ccm of water and 100 ccm of alcohol, and produce no more than an opalescence on the further addition of 5–10 ccm of the same mixture.

On mixing 1 drop of the oil with 5 ccm of nitric acid (specific gravity : 1,4), no permanent red coloration should take place.

O OLEUM OLIVARUM.

Olive Oil.

A fixed oil obtained by expression in the cold from the fruit of Olea europaea *L.*

A pale greenish or yellow liquid, having a faint characteristic odor and a mild taste, free from rancidity. Specific gravity : 0,915–0,920. Iodine value : 80–88. Saponification value : 189–199. Degrees of acidity : not more than 8.

When cooled to about 10°, the oil becomes turbid from the separation of crystalline particles, and at 0° it forms an ointment-like mass.

Vigorously shake 2 ccm of the oil at 10° with a mixture of 1 ccm each of fuming nitric acid and water ; neither red nor brown color should be produced, but a greenish-white mixture, which, after 2-6 hours, separates into a white, solid mass and an almost colorless liquid.

Mix 5 ccm of the oil with 5 ccm each of amyl alcohol and carbon disulphide, which contains 1 per cent. of sulphur in solution, and heat under a reflux condenser in a water bath for 15 minutes ; the mixture should produce no red color. Again add 5 ccm of carbon disulphide solution (1 : 100) of sulphur, and heat for further 15 minutes ; no reddish color should be produced.

Shake 5 ccm of the oil in a test tube with a solution obtained by dissolving 0,05 g of silver nitrate in a mixture of 3,8 ccm of ether, 12 ccm of alcohol and 2 drops of diluted nitric acid, and heat for 15 minutes in a water bath ; neither brown nor black color should be produced.

Shake 5 ccm of the oil with an equal volume of hydrochloric acid, then add 0,5 g of white sugar, and shake again ; no pink color should be produced.

OLEUM PRUNI ARMENIACAE.

Apricot Kernel Oil.

A fixed oil obtained by expression from apricot seed.

A clear, yellow liquid, almost odorless, and having a bland taste ; remaining in a liquid state even at -10°. Specific gravity : 0,91-0,92. Saponification value : 205-215. Iodine value : 96-106.

Strongly shake 2 ccm of the oil with a mixture of 1 ccm each of fuming nitric acid and water ; an orange-red color is produced, and, after a few hours, it separates into a pale orange-yellow, ointment-like mass and an almost colorless liquid.

The oil should be free from rancid odor or taste.

Mix 5 ccm of the oil with 5 ccm each of amyl alcohol and carbon disulphide, which contains 1 per cent. of sulphur in solution, and heat under a reflux condenser in a water bath for 15 minutes ; the mixture should produce no red color. Again add 5 ccm of carbon disulphide solution (1 : 100) of sulphur, and heat for further 15 minutes ; no reddish color should be produced.

Shake 5 ccm of the oil with an equal volume of hydrochloric acid, then add 0,5 g of white sugar, and shake again ; no pink color should be produced.

The oil may be used as a substitute for *Oleum Amygdalarum.*

O OLEUM RICINI.

Castor Oil.

A fixed oil obtained by expression from the husked seeds of Ricinus communis *L.*

A clear, colorless or yellowish, thick liquid, having a faint characteristic odor and a bland taste, followed by a slight sense of acrimony.

At 0°, the oil becomes thicker or turbid, and, on further cooling, it congeals to a cream-like mass ; soluble in all proportions in absolute alcohol, and in glacial acetic acid, also soluble in 3 parts of alcohol. Specific gravity : 0,95–0,97.

Shake a mixture of 3 ccm each of the oil and carbon disulphide and 1 ccm of sulphuric acid for 3 minutes ; no blackish-brown color should be produced.

OLEUM ROSAE.

Rose Oil.

A volatile oil obtained by steam distillation from the flowers of several species of Rosa.

A light yellowish liquid, having a characteristic, fragrant odor ; clearly miscible with about 100 parts of alcohol.

Rose Oil separates acicular crystals at 18–20°, which melt at a somewhat higher temperature.

OLEUM ROSMARINI.

Oil of Rosemary.

A volatile oil obtained by steam distillation from the fresh leaves and tops of Rosmarinus officinalis *L.*

A colorless or pale yellow, thin liquid, having camphoraceous, penetrating, aromatic odor and taste ; clearly miscible with an equal volume of carbon disulphide, and with half its volume of alcohol. Specific gravity : 0,895–0,920. Optical rotation (αD20°) : -2° to +15°.

OLEUM SANTALI.

Oil of Sandalwood. *Oil of Santal.*

A volatile oil obtained by steam distillation from sandalwood.

A pale yellowish or yellow, thick liquid, having the characteristic odor and taste of sandalwood ; showing a neutral or slightly acid reaction. Specific gravity : 0,975–0,985. Optical rotation (αD20°) : -15° to -20°.

It contains not less than 90 per cent. of santalol ($C_{15}H_{24}O = 220,27$).

1 part of the oil should clearly dissolve at 28° in 6 parts of diluted alcohol, and the solution should remain clear on the further addition of diluted alcohol.

On mixing 2 drops of the oil with 7,5 ccm of a mixture of 9 ccm of glacial acetic acid and 1 ccm of hydrochloric acid, neither red nor violet color should be produced within 5 minutes.

Introduce 5 g of the oil into a flask, provided with a reflux condenser, add 5 g of acetic anhydride and 2 g of fused sodium acetate, and boil the mixture for 1 hour. After cooling, add 20 ccm of water, and warm the mixture on a water bath for 15 minutes with occasional agitation. Remove the aqueous layer, wash the oily layer several times with water until the washing does not redden a blue litmus paper, dry it with exsiccated sodium sulphate, and filter through a dry filter paper.

Weigh 1,5 g of the acetylized oil in a flask, add 3 ccm of alcohol, 1–2 drops of phenolphthalein solution and 20 ccm of half-normal alcoholic potassium hydroxide volumetric solution, and heat the mixture on a water bath under a reflux condenser for 1 hour.

Then add 100 ccm of water and 1 ccm of phenolphthalein solution, and titrate the residual alkali with half-normal hydrochloric acid volumetric solution ; not more than 9,5 ccm of the acid solution should be required for neutralization.

Preserve it in well-stoppered bottles, protected from light, in a cool place.

O OLEUM SESAMI.

Sesame Oil.

A fixed oil obtained by expression from the seeds of Sesamum indicum *L.*

A yellowish or golden-yellow liquid, having a faint characteristic odor and a bland taste. The oil solidifies to a yellowish-white, ointment-like mass at –5°. Specific gravity : 0,915–0,926. Iodine value : 103–114. Saponification value : 186–193.

Shake 10 ccm of the oil with 2–3 drops of a cold mixture of an equal volume of sulphuric acid and crude nitric acid ; a deep green color is produced, immediately changing to dard red.

Shake 5 ccm of the oil with an equal volume of hydrochloric acid, then add 0,5 g of white sugar, and shake again ; a pink color is produced.

Vigorously shake 2 ccm of the oil with a mixture of 1 ccm each of fuming nitric acid and water ; it should acquire an orange-red color, and separate, after a few hours, into a yellowish-white, granular mass and a reddish-yellow liquid.

Mix 5 ccm of the oil in a flask with 5 ccm each of amyl alcohol and carbon disulphide, which contains 1 per cent. of sulphur in solution, and heat under a reflux condenser in a water bath for 15 minutes ; the mixture should produce no red color. Again add 5 ccm of carbon disulphide solution (1 : 100) of sulphur, and heat for further 15 minutes ; no reddish color should be produced.

OLEUM SINAPIS AETHEREUM.

Valatile Oil of Mustard.

A volatile oil obtained by steam distillation from mustard.

A clear, colorless or yellowish, thin liquid, having a powerful, irritating odor ; clearly miscible in all proportions with alcohol, and with carbon disulphide. Boiling point : 148–156°. Specific gravity : 1,017–1,025.

When dropped into water, Volatile Oil of Mustard should sink to the bottom in form of clear drops, which do not acquire a whitish color within 1 minute.

Add 6 g of sulphuric acid, slowly and with cooling, to 3 g of the oil, and shake ; it evolves gas, produces a clear, yellow liquid, and then becomes viscous or rarely congeals to a crystalline mass, the pungent odor being lost.

A solution, obtained by diluting 1 volume of the oil with 5 volumes of alcohol, should acquire no coloration with a small quantity of ferric chloride solution.

Dissolve 1 g of the oil in sufficient alcohol to make it measure 50 ccm, transfer 5 ccm of the solution to a 100 ccm flask, and add 30 ccm of tenth-normal silver nitrate volumetric solution and 5 ccm of ammonia water. Heat it on a water bath, under a reflux condenser, during 1 hour, allow it to cool, then dilute the contents of the flask with water to the 100 ccm mark, and filter.

Add 5 ccm of nitric acid and 2 ccm of ammonium ferric sulphate solution to 50 ccm of the clear filtrate, and titrate the excess of the silver nitrate with tenth-normal ammonium sulphocyanate volumetric solution. In order to produce a permanent red color, not more than 5,7 ccm of the latter should be required.

Preserve it with care.

OLEUM TEREBINTHINAE.

Oil of Turpentine.

A volatile oil obtained by steam distillation from turpentine.

A colorless or pale yellow, thin liquid, having a characteristic odor and a pungent taste ; soluble in 5–12 parts of alcohol. Greater part of the oil distils at 155–165°. Specific gravity : 0,860–0,877.

Oil of Turpentine should have no empyreumatic odor.

5 ccm of the oil, when shaken with 1 ccm of potassium hydroxide solution, should produce no yellowish-brown color.

Mix 20 ccm of sulphuric acid with 5 ccm of the oil, cooling during the addition of the acid, then, when the reaction is over, transfer the mixture to a glass cylinder, and allow it to stand ; no oily layer should be separated.

Preserve it in nearly filled, well-stoppered bottles, protected from light.

OLEUM TEREBINTHINAE RECTIFICATUM.

Rectified Oil of Turpentine.

Oil of Turpentine	1 *pt.*
Lime Water	6 *pts.*

Shake oil of turpentine thoroughly with lime water, and distil. When about three-fourths of the oil is recovered, separate the oil from the water, and filter through a dry filter paper.

Rectified Oil of Turpentine distils almost completely at 155–162°.

Specific gravity : 0,86–0,87.

The oil should be a clear, colorless liquid, showing a neutral reaction, 1 ccm of which dissolves clearly in 7 ccm of alcohol.

Preserve it in nearly filled, well-stoppered bottles, protected from light.

OLEUM THYMI.

Oil of Thyme.

A volatile oil obtained by steam distillation from the leaves and tops of Thymus vulgaris *L.*, collected in the flowering season.

A clear, colorless or yellowish or slightly reddish liquid, having strong, aromatic odor and taste. Specific gravity : not less than 0,9.

1 ccm of Oil of Thyme should clearly dissolve in 3 ccm of a mixture of 100 volumes of alcohol and 14 volumes of water.

Introduce 5 ccm of the oil into a graduated cylinder, add 10 ccm of sodium hydroxide solution and 20 ccm of water, shake the mixture strongly, and set it aside until the aqueous layer becomes clear ; the oily layer floating on its surface should measure not more than 4 ccm.

OLEUM TSUBAKI.

Tsubaki Oil.

A fixed oil obtained by expression from the husked seeds of Camellia japonica *L.*

A clear, colorless or pale yellowish liquid, having little odor and a bland taste, free from rancidity. The oil congeals partly at –10°, and completely at –15°. Specific gravity : 0,916. Iodine value : 80–82. Saponification value : 189–192,6.

Add 10 ccm of a cold mixture of equal parts of fuming nitric acid, sulphuric acid and water to 2 ccm of the oil, so as to form 2 layers of liquids ; after a short time, a beautiful, bluish-green zone is produced at the line of contact.

Mix 20 drops of the oil with 1 drop of sulphuric acid ; the mixture acquires a pale yellow color, changing afterwards to dark yellow or brown.

Shake 5 ccm of the oil with an equal volume of hydrochloric acid, then add 0,5 g of white sugar, and shake again ; no pink color should be produced.

Vigorously shake 2 ccm of the oil with a mixture of 1 ccm each of fuming nitric acid and water at a temperature not exceeding 10°; after standing for 2 hours, it should congeal completely.

Mix 5 ccm of the oil with 5 ccm each of amyl alcohol and carbon disulphide, which contains 1 per cent. of sulphur in solution, and heat under a reflux condenser in a water bath for 15 minutes ; the mixture should produce no red color. Again add 5 ccm of carbon disulphide solution (1 : 100) of sulphur, and heat for further 15 minutes ; no reddish color should be produced.

O OPIUM.

Opium.

The milky exudation obtained from the unripe capsules of Papaver somniferum *L.*, inspissated, dried at a temperature not exceeding 60°, and reduced to a powder.

A brown powder with a narcotic odor and a strong bitter taste.

Mix 5 g of powdered Opium, dried at a temperature not exceeding 60°, with 3 g of slaked lime, and extract the mixture with 100 ccm of water in the cold for 2 hours with frequent strong shaking. Decant the mixture into a piece of cloth placed over a filter paper, and filter the liquid obtained by squeezing ; shake 50 ccm of the filtrate with 5 ccm of alcohol, and filter.

To 44 ccm of the second filtrate add 20 ccm of ether and 2 g of ammonium chloride, shake strongly for 30 minutes, and allow it to stand for 24 hours. Collect the crystals here produced upon a filter paper, wash with 10 ccm of water, and dry them at a temperature not exceeding 60°. After cooling, wash the crystals on the filter paper with 10 ccm of pure ether, and dry by heating, at first gently, and then at 96–100°. Dissolve the crystals in 20 ccm of tenth-normal hydrochloric acid volumetric solution, and add 3 drops of haematoxylin solution; 12,2–12,9 ccm of tenth-normal potassium hydroxide volumetric solution should be required to neutralize the solution.

The neutralized solution should develop a blood-red color with nitric acid, and a bluish-green color with ferric chloride solution.

Opium of a higher morphine percentage may be brought within the limits by admixture with Opium of a lower percentage, or with starch.

When dried at 100°, Opium should lose not more than 8 per cent. of its weight.

Preserve it with care.

Maximum dose at a time : 0,15 g.
Maximum dose for a day : 0,5 g.

PANCREATINUM.

Pancreatin.

A mixture of enzymes, found in the pancreas of warm-blooded animals, and usually obtained from the fresh pancreas of the hog.

A yellowish, yellowish-white, or grayish, amorphous powder, having a characteristic but not offensive odor and a meat-like taste ; slowly but almost completely soluble in water, but insoluble in alcohol.

Pancreatin digests proteins and saccharifies starch, but its digestive power is diminished when left in contact with mineral acids for a long time.

Add 0,28 g of Pancreatin and 1,5 g of sodium bicarbonate to 100 ccm of tepid water, contained in a flask, then add 400 ccm of fresh milk, previously heated to 38°, and maintain the temperature of the mixture at this grade for 30 minutes; the milk should be completely peptonized, that on pouring nitric acid to a small portion of the mixture, contained in a test tube, no coagulation occurs. The peptonized milk may acquire a considerably bitter taste, but should be free from rancid odor.

Preserve it in well-stoppered bottles.

PARAAMINOBENZOYLDIAETHYLAMINO-AETHANOLUM HYDROCHLORICUM.

Paraaminobenzoyldiethylaminoethanol Hydrochloride.

$C_{13}H_{20}N_2O_2.HCl = 272,71$

Colorless, odorless, fine needles, having a slightly bitter taste, and producing on the tongue a sensation of tingling and numbness; soluble in 1 part of water, showing a neutral reaction, and in 30 parts of alcohol. Melting point: 156°.

An aqueous solution (1 : 10) of the salt produces, with potassium hydroxide solution, colorless oil globules, which solidify and become crystalline after a short time. The same solution produces a white precipitate with mercuric chloride solution, a brown precipitate with iodine solution, and, when acidified with nitric acid, a white precipitate with silver nitrate solution.

A mixture of equal parts of the salt and mercurous chloride changes black when moistened with diluted alcohol.

Dissolve 0,1 g of the salt in 5 ccm of water, containing 2 drops of hydrochloric acid, and add 2 drops of sodium nitrite solution; the addition of the solution to a mixture, composed of 0,2 g of naphthol, 1 ccm of sodium hydroxide solution and 9 ccm of water, produces a crimson-red precipitate.

Dissolve 0,1 g of the salt in a mixture of 5 drops of diluted sulphuric acid and 5 ccm of water, and then add 5 drops of potassium permanganate solution ; the violet color should immediately disappear.

0,1 g of the salt should dissolve without coloration in 1 ccm of sulphuric or nitric acid.

An aqueous solution (1 : 10) of the salt should not be affected by hydrogen sulphide water.

On incineration, the salt should leave not more than 0,1 per cent. of solid residue.

Preserve it with care.

PARAFFINUM LIQUIDUM.

Liquid Paraffine.

A clear, colorless, oily liquid, obtained from petroleum ; odorless and tasteless ; showing no fluorescence ; insoluble in water, almost insoluble in alcohol, easily soluble in ether, chloroform, and in carbon disulphide. Specific gravity : not less than 0,875.

On heating 100 ccm of Liquid Paraffine at 300° for 30 minutes in a fractionating flask, no distillate should be obtained.

Add 3 ccm of sulphuric acid to 3 ccm of Liquid Paraffine in a test tube, and heat in a water bath for 15 minutes with frequent shaking ; no change of color should take place, nor the acid should acquire any more than a faintly brown color.

Boil Liquid Paraffine with an equal part of alcohol ; the alcoholic layer should not be acid to litmus.

Heat 5 ccm of Liquid Paraffine with 20 ccm of sodium hydroxide solution on a water bath for 30 minutes ; the aqueous layer should deposit no oily substance when supersaturated with sulphuric acid.

PARAFFINUM SOLIDUM.

Solid Paraffine.

A white, microcrystalline mass, without odor; melting at 65–80° to a clear, colorless liquid.

Add 3 ccm of sulphuric acid to 3 g of Solid Paraffine, contained in a test tube, and heat in a water bath for 15 minutes with frequent shaking; no change of color should take place, nor the acid layer should acquire any more than a faintly brown color.

Boil Solid Paraffine with an equal part of alcohol; the alcoholic layer should not redden a blue litmus paper.

PASTAE.

Pastes.

Preparations for external application, of the consistence of viscid ointments, or of kneadable doughs.

Pastes are prepared by intimately triturating the medicine prescribed with starch, fixed oil, fat, wax, solid paraffine, vaseline, water, or other materials.

PASTA SULFURIS CUM PICE LIQUIDA.

Paste of Tar.

Tar	1 *pt.*
Zinc Oxide	1 *pt.*
Sublimed Sulphur	1 *pt.*
Hog's Lard	1 *pt.*
Ox Tallow	2 *pts.*

Triturate them together.

A brownish-gray paste.

Preserve it in well-closed containers, in a cool place.

PASTILLI.

Pastils.

Pastils are the preparations, composed of the medicinal substances, in fine powder and in case of necessity admixed with milk sugar, starch, or with other suitable vehicles, formed in suitable shape.

Allow the pastils to stand in water at about 37°, with occasional agitation ; it should entirely collapse within 30 minutes.

Preserve the pastils well-closed.

PASTILLI ACIDI ACETYLSALICYLICI.

Pastils of Acetylsalicylic Acid.

Acetylsalicylic Acid	50 *pts.*
Starch	7 *pts.*
Purified Talc	3 *pts.*

Mix them, and make pastils.

Each pastil contains 0,5 g of acetylsalicylic acid.

PASTILLI ACIDI TANNICI.

Pastils of Tannic Acid.

Tannic Acid	1 *pt.*
Milk Sugar	9 *pts.*

Mix them, and make pastils.

Each pastil contains 0,05 g of tannic acid.

PASTILLI ANTIPYRINI.

Pastils of Antipyrine.

Antipyrine	1 *pt.*
Starch	1 *pt.*

Mix them, and make pastils.

Each pastil contains 0,25 g of antipyrine.

PASTILLI BISMUTI SUBNITRICI.

Pastils of Bismuth Subnitrate.

Bismuth Subnitrate	1 *pt.*
Milk Sugar	1 *pt.*

Mix them, and make pastils.

Each pastil contains 0,25 g of bismuth subnitrate.

PASTILLI CHININI HYDROCHLORICI.

Pastils of Quinine Hydrochloride.

Quinine Hydrochloride	10 *pts.*
Starch	5 *pts.*
Milk Sugar	3 *pts.*
Purified Talc	2 *pts.*

Mix them, and make pastils.

Each pastil contains 0,1 g of quinine hydrochloride.

PASTILLI COCAÏNI HYDROCHLORICI.

Pastils of Cocaine Hydrochloride.

Cocaine Hydrochloride	1 *pt.*
Milk Sugar	49 *pts.*

Mix them, and make pastils.

Each pastil contains 0,005 g of cocaine hydrochloride.

Preserve them with care.

PASTILLI HYDRARGYRI BICHLORATI.

Pastils of Mercuric Chloride.

Mercuric Chloride	1 *pt.*
Potassium Chloride	1 *pt.*

Mix them, color the mixture with scarlet or fuchsin S, and make pastils.

Each pastil contains 0,5 g of mercuric chloride.

Preserve them with special care, in well-stoppered bottles, protected from light.

PASTILLI HYDRARGYRI CHLORATI.

Pastils of Mercurous Chloride.

Mercurous Chloride	25 *pts.*
Milk Sugar	8 *pts.*
Starch	11 *pts.*
Purified Talc	6 *pts.*

Mix them, and make pastils.

Each pastil contains 0,25 g of mercurous chloride.

Preserve them with care, protected from light.

PASTILLI IPECACUANHAE.

Pastils of Ipecacuanha.

Ipecacuanha Root	1 *pt.*
Milk Sugar	49 *pts.*

Mix them, and make pastils.

Each pastil contains 0,01 g of ipecacuanha root.

PASTILLI KALII JODATI.

Pastils of Potassium Iodide.

Make pastils with potassium iodide.

Each pastil contains 0,25 g of potassium iodide.

Preserve them in well-stoppered bottles.

PASTILLI MORPHINI HYDROCHLORICI.

Pastils of Morphine Hydrochloride.

Morphine Hydrochloride	1 *pt.*
Milk Sugar	49 *pts.*

Mix them, and make pastils.

Each pastil contains 0,005 g of morphine hydrochloride.

Preserve them with care.

PASTILLI NATRII SALICYLICI.

Pastils of Sodium Salicylate.

Sodium Salicylate	1 *pt.*
Starch	1 *pt.*

Mix them, and make pastils.

Each pastil contains 0,25 g of sodium salicylate.

PASTILLI OPII ET IPECACUANHAE.

Pastils of Opium and Ipecacuanha.

Opium	1 *pt.*
Ipecacuanha Root, *in fine powder*	1 *pt.*
Saffron, *in fine powder*	1 *pt.*
Milk Sugar	7 *pts.*

Mix them, and make pastils.

Each pastil contains 0,05 g each of opium and ipecacuanha root.

Preserve them with care.

PASTILLI SANTONINI.

Pastils of Santonin.

Santonin	2 *pts.*
Milk Sugar	22 *pts.*
Purified Talc	1 *pt.*

Mix them, and make pastils.

Each pastil contains 0,02 g of santonin.

Preserve them protected from light.

PASTILLI STOMACHICI.

Stomachic Pastils.

Sodium Bicarbonate	5 *pts.*
Ryutan Root, *in fine powder*	2 *pts.*

Mix them, and make pastils.

Each pastil contains 0,25 g of sodium bicarbonate and 0,1 g of ryutan root.

PEPSINUM SACCHARATUM.

Saccharated Pepsin.

A mixture of milk sugar and pepsin, obtained from the glandular layer of the stomach of the hog or of the ox.

A fine, almost white powder, slightly deliquescent; having a faint, characteristic odor and a slightly sweet and afterwards somewhat bitter taste; soluble with a slight turbidity in 100 parts of water, showing a weak acid reaction, but almost insoluble in alcohol.

It should have neither disagreeable nor ammoniacal odor.

Dissolve 0,1 g of Saccharated Pepsin in a mixture of 100 ccm of water and 0,5 ccm of hydrochloric acid, add 10 g of albumen, obtained by heating a fresh egg for about 8 minutes in boiling water and rubbing the cooled albumen twice through No. 4 sieve, and allow the mixture to stand at 50° with frequent shaking; the albumen should be almost completely dissolved within 2 hours.

When dried at 100°, Saccharated Pepsin should lose not more than 0,5 per cent. of its weight.

On incineration, Saccharated Pepsin should leave not more than 0,5 per cent. of solid residue.

Preserve it in well-stoppered bottles.

PHENACETINUM.

Phenacetin.

$C_{10}H_{13}NO_2 = 179{,}16$

Colorless, glistening leaflets; odorless and tasteless; difficultly soluble in water, soluble in about 70 parts of boiling water, and in about 16 parts of alcohol, showing a neutral reaction. Melting point: 134–135°.

On shaking with nitric acid, Phenacetin acquires a yellow color.

Boil 0,1 g of Phenacetin for 1–2 minutes with 1 ccm of hydrochloric acid, dilute the mixture with 20 ccm of water, and then filter after cooling; the filtrate produces a ruby-red color with 2–3 drops of potassium bichromate solution.

Dissolve 0,1 g of Phenacetin in 10 ccm of boiling water, and filter the solution after cooling; the filtrate should not become turbid on the addition of bromine water until it remains yellow.

A mixture of 0,3 g of Phenacetin and 1 ccm of alcohol, when diluted with 3 times its volume of water, should not acquire a red color on boiling with 1 drop of iodine solution.

0,1 g of Phenacetin should dissolve almost without coloration in 1 ccm of sulphuric acid.

On incineration, Phenacetin should leave not more than 0,1 per cent. of solid residue.

Preserve it with care.

Maximum dose at a time: 1 g.
Maximum dose for a day: 3 g.

PHENOLPHTHALEÏNUM.

Phenolphthalein.

$C_{20}H_{14}O_4 = 318,21$

A white or yellowish-white, crystalline or amorphous powder, odorless and tasteless; almost insoluble in water, soluble in 12 parts of alcohol, also soluble in potassium hydroxide or sodium hydroxide solution with a red color. Melting point: 255–258°.

0,5 g of Phenolphthalein should dissolve without coloration in 20 ccm of alcohol.

0,5 g of Phenolphthalein should dissolve completely in a mixture of 1 ccm of sodium hydroxide solution and 50 ccm of water.

On incineration, Phenolphthalein should leave not more than 0,1 per cent. of solid residue.

Preserve it with care.

PHENYLDIHYDROCHINAZOLINUM TANNICUM.

Phenyldihydroquinazoline Tannate.

A white or yellowish-white powder, nearly odorless and tasteless; sparingly soluble in water, easily soluble in water, acidified with hydrochloric acid, also soluble in 50 parts of alcohol.

Pour 2 ccm of alcohol on 0,5 g of the salt, and add 8 ccm of diluted hydrochloric acid (1 : 20); the resulting solution produces a white precipitate with mercuric chloride solution, and a dark turbidity with potassium chromate solution. The same solution produces, with sodium hydroxide solution, a yellowish-white precipitate; on shaking the mixture with ether, and evaporating the ethereal solution, a residue is obtained, which melts at about 95° and is soluble in alcohol and in chloroform.

On heating with zinc powder, an odor of isonitrile is evolved. To the mixture add water, acidified with hydrochloric acid, and filter: the filtrate is colored blue by the addition of chlorinated lime solution.

A solution of the salt in water, acidified with hydrochloric acid, produces a blue color with ferric chloride solution.

On incineration, the salt should leave not more than 0,1 per cent. of solid residue.

PHENYLUM SALICYLICUM.

Phenyl Salicylate.

$C_{13}H_{10}O_3 = 214{,}15$

A white, crystalline powder, having faintly aromatic odor and taste; almost insoluble in water, easily soluble in ether, and in chloroform, also soluble in 15 parts of alcohol. Melting point : about 42°.

An alcoholic solution of Phenyl Salicylate acquires a violet color with diluted ferric chloride solution.

Dissolve 0,2 g of Phenyl Salicylate in 2 ccm of sodium hydroxide solution by heating, and supersaturate the solution with hydrochloric acid ; a white precipitate of salicylic acid separates, and the odor of carbolic acid is recognizable.

Phenyl Salicylate should not redden a moistened blue litmus paper.

Shake 1 part of Phenyl Salicylate with 50 parts of water, and filter ; the filtrate should not be affected by diluted ferric chloride solution, barium nitrate solution, or by silver nitrate solution.

On incineration, Phenyl Salicylate should leave not more than 0,1 per cent. of solid residue.

PHOSPHORUS.

Phosphorus.

P=31,04

A white or yellowish, translucent, waxy solid, usually in a cylindrical form ; melting in water at 44°.

Phosphorus emits white fumes of a characteristic odor on exposure to the air, is highly inflammable, and is luminous in the dark ; on long keeping, its surface becomes red and occasionally black.

Phosphorus is insoluble in water, easily soluble in carbon disulphide, somewhat difficultly soluble in fixed or volatile oils, but sparingly soluble in alcohol, and in ether.

Preserve it with special care, in glass-stoppered bottles, filled with water and kept in tinn vessels.

Maximum dose at a time : 0,001 g.
Maximum dose for a day : 0,003 g.

PHYSOSTIGMINUM SALICYLICUM.

Eserinum Salicylicum.

Physostigmine Salicylate. *Eserine Salicylate.*

$C_{15}H_{21}N_3O_2 \cdot C_7H_6O_3 = 413{,}36$

Colorless or faintly yellowish, shining crystals; slowly soluble in 100 parts of water, readily in 12 parts of alcohol.

An aqueous solution (1 : 100) of the salt does not immediately redden a blue litmus paper. The dried salt is permanent in the air, even on exposure to light, but an aqueous or alcoholic solution of the salt acquires a pink tint after 1–2 hours.

An aqueous solution of the salt produces a violet color with ferric chloride solution, and becomes turbid with iodine solution.

Physostigmine Salicylate dissolves colorlessly in sulphuric acid, and the solution turns gradually yellow.

A small piece of the salt dissolves, by warming, in ammonia water with a yellowish-red color, and the solution, when evaporated on a water bath, leaves a blue or bluish-gray residue, which dissolves with a blue color in alcohol. The alcoholic solution is colored red and shows a fluolescence on the supersaturation with acetic acid. The same residue dissolves in 1 drop of sulphuric acid with a green color, which changes to red when diluted with alcohol and to green again on evaporation of the alcohol.

When dried at 100°, the salt should scarcely lose its weight.

On incineration, the salt should leave not more than 0,1 per cent. of solid residue.

Preserve it with special care, protected from light.

Maximum dose at a time : 0,001 g.
Maximum dose for a day : 0,003 g.

PHYSOSTIGMINUM SULFURICUM.

Physostigmine Sulphate.

$(C_{15}H_{21}N_3O_2)_2.H_2SO_4=648{,}62$

A white or faintly yellowish, crystalline powder, having a bitter taste; deliquescent in moist air; readily soluble in water, and in alcohol, the solution showing a neutral reaction.

An aqueous solution of the salt produces, with barium nitrate solution, a white precipitate, which is insoluble in diluted acids.

An aqueous solution (1 : 1000) of the salt should produce, if any, not more than a very faintly violet color with ferric chloride solution.

In other respects, the salt should conform to the tests for identity and purity under *Physostigminum salicylicum.*

Preserve it with special care, in well-stoppered bottles, protected from light.

Maximum dose at a time : 0,001 g.
Maximum dose for a day : 0,003 g.

PILOCARPINUM HYDROCHLORICUM.

Pilocarpine Hydrochloride.

$C_{11}H_{16}N_2O_2.HCl=244{,}67$

White crystals, having a slightly bitter taste; deliquescent in the air; easily soluble in water, and in alcohol, showing a slightly acid reaction, sparingly soluble in ether, and in chloroform. Melting point: about 196°.

On adding a small quantity of sodium hydroxide solution, the salt deposits oil globules, which dissolves clearly on heating and evolves the odor of trimethylamine on further heating.

An aqueous solution of the salt produces, with silver nitrate solution, a white precipitate, insoluble in diluted nitric acid.

Dissolve 0,01 g of the salt in 5 ccm of water, then add 1 drop of diluted sulphuric acid, 1 ccm of diluted hydrogen peroxide solution, 1 ccm of benzene and 1 drop of potassium bichromate solution, and shake the mixture vigorously ; the benzene layer acquires a bluish-violet color.

An aqueous solution (1 : 100) of the salt should produce a precipitate with iodine solution, bromine water, and with mercuric chloride solution, but no turbidity with ammonia water, or with potassium bichromate solution.

The salt should dissolve without coloration in sulphuric acid, but with a faint green color in fuming nitric acid.

When dried at 100°, the salt should scarcely lose its weight.

On incineration, the salt should leave not more than 0,1 per cent. of solid residue.

Preserve it with special care, in well-stoppered bottles.

Maximum dose at a time : 0,02 g.
Maximum dose for a day : 0,04 g.

PILULAE.

Pills.

Pills are the preparations for internal application, generally spherical or rarely egg-shaped, prepared in general by using a powder of licorice root, licorice juice, or of extract of licorice as a vehicle.

In order to prepare pills, intimately mix the ingredients, knead the mixture with a vehicle to make a plastic mass, and divide it into pills.

Pills should be uniform in the size, and each should weigh about 0,1 g except in case when otherwise described.

When a substance is prescribed, which easily decomposes when in contact with organic matter, use white bole, purified talc and glycerin, or vaseline as a vehicle in general. When a large quantity of balsam, volatile oil, or fat is prescribed, use yellow wax as a vehicle.

For coating, lycopodium or finely powdered licorice root is commonly used.

PILULAE ACIDI ARSENICOSI.

Pills of Arsenous Acid.

Arsenous Acid	1 *pt.*
Licorice Root, *in fine powder*	30 *pts.*
Cassia Bark, *in fine powder*	30 *pts.*
Glycerin	*a suitable quantity.*

Mix the powders intimately, incorporate glycerin, and divide the mass into pills.

Each pill contains 0,001 g of arsenous acid.

Preserve them with special care.

PILULAE ALOËS.

Pills of Aloes.

Aloes, *in medium powder.*
Medicinal Soap.

Mix equal parts of the powders, then incorporate sufficient water to make a mass, and divide it into pills.

PILULAE ALOËS ET FERRI.

Pills of Aloes and Iron.

Exsiccated Ferrous Sulphate.
Aloes, *in medium powder.*

Mix equal parts of the ingredients, incorporate sufficient alcohol to make a suitable mass, and divide it into pills.

PILULAE ALOËS ET JALAPAE.

Pills of Aloes and Jalap.

Aloes, *in medium powder.*
Jalap Soap.
Licorice Root, *in fine powder.*

Triturate equal parts of the powders, and divide the mass into pills, each weighing about 0,15 g.

PILULAE FERRI ET CHININI.

Pills of Quinine and Iron.

Quinine Hydrochloride	5 *pts.*
Reduced Iron	5 *pts.*
Extract of Ryutan	*a suitable quantity.*

Incorporate them to a mass, and divide it into pills, each weighing about 0,15 g.

Each pill contains 0,05 g each of quinine hydrochloride and reduced iron.

PILULAE GUAJACOLI CARBONICI.

Pills of Guaiacol Carbonate.

Guaiacol Carbonate, *in fine powder*	5 *pts.*
Licorice Root, *in fine powder*	2 *pts.*
Extract of Ryutan	*a suitable quantity.*

Incorporate them to a mass, and divide it into pills.

Each pill contains 0,05 g of guaiacol carbonate.

PILULAE KREOSOTI.

Pills of Creosote.

Creosote	10 *pts.*
Licorice Root, *in fine powder*	19 *pts.*
Glycerin	1 *pt.*

Incorporate them to a mass, and divide it into pills, each weighing about 0,15 g, using powdered cassia bark as coating.

Each pill contains 0,05 g of creosote.

PILULAE KREOSOTI CARBONICI.

Pills of Creosote Carbonate.

Creosote Carbonate	5 *pts.*
Glycerin	3 *pts.*
Licorice Root, *in fine powder*	10 *pts.*

Incorporate them to a mass, and divide it into pills, each weighing about 0,18 g.

Each pill contains 0,05 g of creosote carbonate.

PILULAE RHEI COMPOSITUS.

Compound Pills of Rhubarb.

Extract of Rhubarb	6 *pts.*
Extract of Aloes	2 *pts.*
Jalap Resin	1 *pt.*
Medicinal Soap	4 *pts.*

Mix them, then incorporate sufficient water to a mass, and divide it into pills, using rhubarb, in fine powder, as coating.

PIX BETULAE LIQUIDA. *Oleum Rusci.*

Birch Tar.

A tar obtained by the destructive distillation of the wood of Betula alba *L.*

A blackish-brown, oily, viscid liquid, having a characteristic pungent odor; transparent in thin layers.

Shake 1 part of Birch Tar with 20 parts of water, and filter; 10 ccm of the filtrate produces a permanent green color with a few drops of diluted ferric chloride solution.

PIX JUNIPERI LIQUIDA. *Oleum cadinum.*

Juniper Tar. *Oil of Cade.*

A tar obtained by the destructive distillation of the wood of Juniperus Oxycedrus *L.* and other species of Juniperus.

A dark brown, oily, viscid liquid, transparent in thin layers; soluble in chloroform, ether, and in aniline, and nearly soluble in turpentine oil.

Shake 1 part of Juniper Tar with 20 parts of water, and filter; 10 ccm of the filtrate produces a permanent red color on the addition of a few drops of diluted ferric chloride solution.

PIX LIQUIDA.

Tar.

A tar obtained by the destructive distillation of the wood of several species of Pinus.

A blackish-brown, semi-transparent, viscid liquid; somewhat granular; odor characteristic; heavier than water; completely soluble in absolute alcohol, partially soluble in turpentine oil with a brownish-yellow color.

Under the microscope, Tar shows fine crystals.

10 parts of water, shaken with 1 part of Tar, should acquire a yellowish color, a characteristic odor and an acid reaction. 10 ccm of the same aqueous solution should acquire a greenish-brown color on the addition of 20 ccm of water and 2 drops of ferric chloride solution. A mixture of equal volumes of the same aqueous solution and lime water should be dark brown in color.

PLUMBUM ACETICUM.

Lead Acetate. *Sugar of Lead.*

$Pb(C_2H_3O_2)_2 + 3H_2O = 379,32$

Colorless, transparent crystals, or white, crystalline masses, having an acetous odor and a sweetish, astringent taste ; gradually efflorescent in the air ; soluble in 2,3 parts of water, and in 29 parts of alcohol.

A cold, saturated, aqueous solution of the salt is alkaline to litmus, but shows a slightly acid reaction when diluted with water.

An aqueous solution of the salt produces a yellow precipitate with potassium iodide solution, a black precipitate with hydrogen sulphide water, a white precipitate with sulphuric acid, and finally a white precipitate with ferric chloride solution, the supernatant liquid being red in the last case.

A solution of 1 part of the salt in 9 parts of water, freshly boiled and cooled, should be clear, or only slightly opalescent, and should it produce a pure white precipitate on the addition of a small quantity of potassium ferrocyanide solution. Saturate 10 ccm of the same solution with hydrogen sulphide, and filter ; the filtrate should leave no weighable solid residue on evaporation.

Preserve it with care.

Maximum dose at a time : 0,1 g.
Maximum dose for a day : 0,3 g.

PLUMBUM CARBONICUM.

Lead Carbonate.

A heavy, white powder; insoluble in water, or in alcohol.

When heated strongly, the salt changes to yellow in color, and when heated strongly with powdered charcoal, it produces metal grains.

The salt dissolves with effervescence in acetic acid, and in diluted nitric acid.

Saturate an acetic acid solution (1 : 10) of the salt with hydrogen sulphide, and filter; the filtrate should leave, on evaporation, no weighable solid residue. The precipitate, produced by the addition of a small quantity of potassium ferrocyanide solution to the same filtrate, should be pure white.

On heating strongly, the salt should leave not less than 85 per cent. of lead oxide.

PLUMBUM OXYDATUM. *Lithargyrum.*

Lead Oxide. *Litharge.*

$PbO = 223,2$

A yellowish or reddish-yellow, fine, heavy powder, which melts and becomes dark on heating; insoluble in water, or in alcohol, but soluble in diluted nitric acid.

A solution of Lead Oxide in diluted nitric acid produces with hydrogen sulphide water a black precipitate, and with diluted sulphuric acid a white precipitate, soluble in sodium hydroxide solution.

1 part of Lead Oxide should dissolve entirely or almost clearly in 10 parts of diluted nitric acid, with no more than a slight efflorescence, and produce a colorless solution. Add an excess of diluted sulphuric acid to the resulting solution, and filter; the filtrate, when supersaturated

with ammonia water, should produce no more than a bluish color nor any more than a minute quantity of a reddish-brown precipitate.

Shake 5 g of Lead Oxide with 5 ccm of water, and then boil the mixture with 20 ccm of acetic acid for 2-3 minutes ; it should dissolve almost entirely, or leave, if any, not more than 0,05 g of insoluble substance.

When heated strongly, Lead Oxide should lose not more than 1 per cent. of its weight.

Preserve it with care.

PULPA TAMARINDORUM.

Tamarind.

The pulp of the fruit of Tamarindus indica *L.*

A blackish-brown, somewhat tough, soft mass ; having a strong, pure acidulous taste ; admixed with a small quantity of seeds, the pergamentous coat of the loculi, the vascular bundles, and the broken pieces of the pericarp.

Thoroughly extract 20 g of Tamarind with 190 g of water by shaking, filter, and evaporate 100 g of the filtrate to dryness ; it should leave at least 5 g of residue.

PULPA TAMARINDORUM DEPURATUM.

Purified Tamarind.

Pour boiling water on Tamarind, soften it uniformly, sift it with pressure through the sieve No. 4 into a porcelain dish, and evaporate on a water bath until it gets the consistency of a thick extract.

Mix 5 parts of the resulting jam, still warm, with 1 part of powdered white sugar.

Purified Tamarind should have a blackish-brown color and an agreeable acid taste.

When dried at 100°, it should lose not more than 40 per cent. of its weight.

Shake 2 g of Purified Tamarind with 50 ccm of boiling water, and filter after cooling ; 25 ccm of the filtrate should require for neutralization at least 1,2 ccm of normal potassium hydroxide volumetric solution.

Incinerate 2 g of Purified Tamarind, dissolve the residue in 5 ccm of diluted hydrochloric acid by warming, and filter ; the filtrate should produce no change with hydrogen sulphide water.

PULVERES.

Powders.

Powders are prepared by the trituration of the medicine or a mixture of several kinds of medicines to a homogeneous powder.

In order to prepare the powders, in general, thoroughly dry the medicine, and reduce it to a fine powder.

When the medicine, to be used, contains volatile or unstable substances, dry it at a low temperature as possible.

PULVIS AËROPHORUS.

Effervescing Powder.

Sodium Bicarbonate, *in medium powder*	2 *g*.
Tartaric Acid, *in medium powder*	1,5 *g*.

Wrap the former in a colored paper, and the latter in a white paper.

PULVIS AROMATICUS.

Aromatic Powder.

Cassia Bark, *in medium powder*.
Cardamom, *in medium powder*.

Ginger, *in medium powder*.

Thoroughly mix equal parts of the powders.

A grayish-brown powder ; odor and taste aromatic.

O PULVIS DOVERI.

Dover's Powder.

Opium	1 *pt.*
Ipecacuanha Root, *in fine powder*	1 *pt.*
Potassium Sulphate, *in fine powder*	8 *pts.*

Mix them intimately.

A light brown powder, having an intense odor of opium.

Dover's Powder contains 10 per cent. of opium.

Preserve it with care, in well-stoppered bottles.

Maximum dose at a time : 1 g.
Maximum dose for a day : 3 g.

PULVIS GUMMOSUS.

Gum Powder.

Gum Arabic, *in fine powder*	5 *pts.*
Licorice Root, *in fine powder*	3 *pts.*
White Sugar, *in medium powder*	2 *pts.*

Mix them thoroughly.

A yellowish-white powder.

PULVIS INFANTUM. ***Pulvis Magnesiae cum Rheo.***

Infant's Powder. *Magnesia Rhubarb Powder.*

Magnesium Carbonate, *in fine powder*	10 *pts.*
Rhubarb, *in fine powder*	3 *pts.*

Fennel Oil Sugar	7 *pts.*

Mix them thoroughly.

A whitish powder, having an odor of fennel, and gradually changing to reddish-white.

Preserve it in well-stoppered bottles.

PULVIS LIQUIRITIAE COMPOSITUS.

Compound Powder of Licorice.

Licorice Root, *in fine powder*	3 *pts.*
Senna Leaves, *in fine powder*	3 *pts.*
Fennel Fruit, *in medium powder*	2 *pts.*
Purified Sulphur	2 *pts.*
White Sugar, *in medium powder*	10 *pts.*

Mix them thoroughly.

A dry, greenish-yellow powder.

PULVIS RHEI COMPOSITUS.

Compound Powder of Rhubarb.

Rhubarb, *in fine powder*	2 *pts.*
Magnesium Oxide	6 *pts.*
Ginger, *in fine powder*	1 *pt.*

Mix them thoroughly.

A powder, from yellowish-white to reddish-white in color, gradually changing to reddish.

PULVIS SALICYLICUS CUM TALCO.

Salicylated Powder of Talc.

Salicylic Acid, *in fine powder*	3 *pts.*
Starch, *in fine powder*	10 *pts.*
Talc	87 *pts.*

Mix them thoroughly.

A white or faintly reddish powder.

PULVIS STOMACHICUS.

Stomachic Powder.

Sodium Bicarbonate, *in powder*	5 *pts.*
Ryutan Root, *in powder*	2 *pts.*

Mix them intimately.

The powder has a pale yellowish-brown color.

PULVIS ZINCI CUM AMYLO.

Dusting Powder of Zinc Oxide.

Zinc Oxide.
Starch.

Triturate equal parts of zinc oxide and starch.

A dry, white powder.

PYOKTANINUM COERULEUM.

Pyoctanine Blue.

A blue, crystalline powder ; soluble in water, and in alcohol, the solution having a violet color.

The addition of hydrochloric acid, drop by drop, to an aqueous solution (1 : 1000) of Pyoctanine Blue changes the color from blue to green, and the dilution with water changes the color to violet again.

The addition of sodium hydroxide solution to an aqueous solution (1 : 1000) of Pyoctanine Blue produces a reddish-violet precipitate.

An aqueous solution (1 : 1000) of Pyoctanine Blue is decolorized by warming with alcoholic sodium hydroxide solution.

When dissolved in alcohol, it should leave not more than 1 per cent. of insoluble substance.

Incinerate 1 g of Pyoctanine Blue ; not more than 0,01 g of solid residue should remain. Dissolve the residue in diluted hydrochloric acid, and filter ; the filtrate should not be affected by hydrogen sulphide, or by ammonium sulphide when rendered alkaline with ammonia water.

Mix 1 g of Pyoctanine Blue with 2 g of potassium nitrate and 1,5 g of exsiccated sodium carbonate, and incinerate the mixture. Dissolve the white residue, after cooling, in 30 ccm of diluted sulphuric acid, expel the nitric acid by evaporation, then dissolve the residue in 15 ccm of water, and add 3 ccm of stannous chloride solution ; the mixture should acquire no dark color within 1 hour.

Preserve it with care.

PYROGALLOLUM. *Acidum pyrogallicum.*

Pyrogallol. *Pyrogallic Acid.*

$C_6H_6O_3 = 126,08$

White, lustrous, light laminae or needles ; odorless and having a bitter taste ; soluble in 1,7 parts of water, forming a colorless, clear solution of neutral reaction, which gradually acquires a brown color and an acid reaction on exposure to the air ; soluble in 1,5 parts of alcohol, and in 1,5 parts of ether.

Pyrogallol melts at about 132°, and then sublimes undecomposed on further heating.

Shake Pyrogallol with lime water; the solution acquires at first a violet color, then becomes turbid, and finally changes from brown to black.

An aqueous solution of Pyrogallol, freshly prepared, is colored blue by ferrous sulphate solution, and brownish-red by ferric chloride solution. An aqueous solution of Pyrogallol reduces silver nitrate solution, and deposits silver.

On incineration, Pyrogallol should leave not more than 0,1 per cent. of solid residue.

Preserve it protected from light.

RADIX ABELMOSCHI.

Abelmoschus Root.

The primary root of Abelmoschus Manihot *Medic.*, deprived of the periderm, and dried.

Abelmoschus Root is more than 1 dm in length, and 0,5–1 cm in thickness; whitish in color; rich in starch grains. The whitish cross section of the root shows the bark, with fibre bundles, tangentially arranged, and a small pith at the centre.

On mixing 1 part of the root with 10 parts of water, a yellowish mucilage should be obtained, which has an insipid taste but neither acidulous nor ammoniacal odor.

RADIX ALTHAEAE.

Althaea Root.

The rootlets of Althaea officinalis *L.*, deprived of the corky layer, and dried.

Althaea Root exceeds 2 dm in length, and 1,5 mm in diameter; externally whitish, marked with wart-like scars, and covered with fine fibres. The wood and bark, which are rich in starch grains, contain the bundles of sclerenchymatous fibres, arranged in tangential rows, oxalate cells and mucilage cells, in which the mucilage is deposited in layers on the inner side of the cell-wall.

The cross section of the root, with the exception of the pale brownish cambium zone, should be whitish in color.

1 part of the root should give, with 10 parts of cold water, a faintly yellowish mucilage with an insipid taste, but with neither acid nor ammoniacal odor.

Lignified or dirty white Althaea Root should be rejected.

RADIX COLOMBO.

Calumba Root.

The dried, transversely sliced root of Jatrorrhiza palmata *Miers.*

Calumba Root is yellow in color, about 3–6 cm in diameter; the corky layer is grayish-brown and wrinkled, and, at a distance of about 5 mm from it, the dark cambium zone lies.

The tissue of the root consists chiefly of parenchymatous cells containing starch grains, which show an excentric stratification, and are not longer than 0,09 mm. In the cortical tissue are found isolated, lignified, sclerenchymatous cells, which partly contain oxalate crystals. The cross section of the wood exhibits yellow, shortly articulate, reticulate tracheae, which are arranged in irregular radial rows, interrupted by the parenchyma.

It has a bitter, slightly slimy taste.

RADIX GENTIANAE.

Gentian Root.

The dried roots and rhizome of Gentiana lutea *L.*, Gentiana pannonica *Scop.*, Gentiana purpurea *L.*, and Gentiana punctata *L.*

Gentian Root is from reddish-brown to dark brown in color ; the rhizome portion annulate ; the root longitudinally wrinkled ; fractures even, and become flexible and tough when moistened with water.

It shows radial structure only near the cambium ; no sclerenchymatous cells in the whole tissue ; tracheae solitary or in groups of small numbers ; sieve tubes are found not only in the bark but also in the wood ; the parenchymatous cells contain minute crystals of oxalate and a very few of starch grains ; the membrane of the parenchymatous cells swells when moistened with water.

It has a very bitter taste.

On incineration, it should leave not more than 6 per cent. of solid residue.

It may be used as a substitute for *Radix Gentianae scabrae.*

O RADIX GENTIANAE SCABRAE.

Ryutan Root. *Japanese Gentian Root.*

The dried rhizome and roots of Gentiana scarbra *Bge. var.* Buergeri *Maxim:*

The rhizome is dark grayish-brown, attaining about 1 dm in length and 5 mm in diameter. It is irregularly annulate, and bears on the top stem-bases, occasionally stem-remnants, and on the lateral and lower sides numerous roots. The cross section of the rhizome is dark brown, and shows in the wood fibro-vascular bundles running irregularly.

The roots are brownish-yellow, attaining about 2 dm in length and 3 mm in diameter, and longitudinally wrinkled. The cross section of the root is brown, having a darker colored wood, which shows redially arranged tracheae at the periphery.

It does not contain sclerenchymatous cells ; the parenchymatous cells contain many oxalate crystals, but no starch grains.

It has a very bitter taste.

It may be used as a substitute for *Radix Gentianae.*

O RADIX IPECACUANHAE.

Ipecacuanha Root.

The dried thickened root of Uragoga Ipecacuanha *Baill.*

Ipecacuanha Root is 5 mm or less in diameter, externally dark grayish-brown, and annulated with thickened rings. The bark appears whitish in cross section, covered with a brown corky layer, and consisting, except the sieve tubes, only of parenchymatous cells, which usually contain compound starch grains and raphides of oxalate.

The wood of Ipecacuanha Root is hard, straw-colored, and consists of substitute fibres, tracheae and tracheids ; substitute fibres are thick-walled, lignified, and elongated in the direction of the longitudinal axis, having oblique, slit-like pores, and containing starch grains ; tracheae resemble to the substitute fibres, but are different from the latter in having bordered pores ; most of the tracheae are connected with each other by round holes which lie near both ends.

The diameter of the largest starch grains should not exceed 0,012 mm.

Add 120 ccm of ether to 6 g of Ipecacuanha Root, deprived of wood, reduced to a fine powder, and dried at 100°, set aside for 10 minutes with frequent shaking, then add 5 ccm of ammonia water, and set aside for 1 hour with frequent strong shaking. Rapidly filter the clear ethereal solution through purified cotton, distil off the ether from 100 ccm of the filtrate, and dissolve the residue, by gentle heat, in 5 ccm of absolute alcohol. Add 10 ccm of water, 30 ccm of ether and 3 drops of haematoxylin solution, and titrate it with tenth-normal hydrochloric acid volumetric solution, with light shaking, until a reddish-brown color is produced. Then add 30 ccm of water, and again continue the titration with frequent strong shaking ; at least 4,2 ccm of the tenth-normal volumetric solution should be required to produce a yellow color in the lower aqueous layer.

It should be used after removal of the wood.

Preserve it with care.

O RADIX LIQUIRITIAE.

Licorice Root.

The roots and stolons of Glycyrrhiza glabra *L. var.* glandulifera *Regel et Herder*, deprived of cork, and dried.

Yellowish in color, nearly cylindrical in form ; externally fibrous ; easy to split.

Cross sections of Licorice Root show wood with straight radial lines ; bark with slightly curved radial lines ; in the inner bark and wood, many groups of fibres, surrounded by crystal-fibres ; sieve tubes almost obliterated ; large tracheae of yellow color, which are visible with a magnifying-glass ; parenchymatous cells containing starch grains.

Licorice Root has a characteristic, sweet taste.

RADIX POLYGALAE.

Onji.

The dried root of Polygala tenuifolia *Willd.*

Onji is light grayish-brown, cylindrical, curved, sometimes branched at the apex, bearing the scars of the lateral roots, attaining 5 mm in diameter. The bark is deeply marked with transverse wrinkles, and more or less constricted to knots.

Onji, which was deprived of wood, is in quill or curved piece.

Under the microscope, cross sections of Onji show well developed corky layer ; the bark, consisting of parenchymatous cells, occasionally containing oil globules and clustered or single crystals of oxalate, but no starch grains ; medullary rays of the wood 1–3 cells in width, which are occasionally broken.

It has no odor and an acrid taste.

It should bear not more than a few remains of the stem.

RADIX SARSAPARILLAE.

Sarsaparilla.

The dried root of several species of Smilax, growing in central America.

Sarsaparilla is brownish-gray, cylindrical, 4 mm thick, and more or less longitudinally wrinkled. Its transverse section shows a brown endodermis, surrounded by a white, cortical parenchyma.

The starch grains of the parenchyma should not be swollen up.

Taste macilaginous and afterwards acrid.

RADIX SENEGAE.

Senega Root.

The dried root of Polygala Senega *L.*

Senega Root is of grayish-yellow color ; its crown is knotty, bearing numerous stem-bases and buds with reddish bracts. The main root, not exceeding 1,5 cm in thickness, is branched and contorted , its flat side is frequently provided with prominent keels.

The cross sections of the root show the circular wood, which is frequently fissured against the centre, making a fan-like wood-wedge composed of parenchyma ; the sieve tubes only near the external boundary of the normally developed wood.

It has no pith, and is free from oxalate crystals or starch grains. The cells of the bark contain oil globules.

Taste slimy, and afterwards acrid ; odor weak, but characteristic.

RADIX TARAXACI CUM HERBA.

Taraxacum.

The dried plant of Taraxacum officinale *Wigg.* and its varieties, gathered in spring prior to the flowering season.

The radical leaves are roughly serrate; the roots are 1–2 dm long, 0,5–2,5 cm thick, brown in color, and longitudinally wrinkled. The transverse section of the root shows a yellow wood, which is not radiate; the bark is thick, and contains numerous lactiferous vessels, arranged in concentric rows.

RESINA GUAJACI.

Guaiac Resin.

The resin obtained from the wood of Guajacum officinale *L.*, or of Guajacum sanctum *L.*

Greenish-brown or reddish-brown masses, with a vitreous fracture, translucent in thin splinters; its powder turning to dark green on exposure to the air.

On heating, Guaiac Resin melts, giving off an faint odor resembling that of benzoin.

It should be soluble in alcohol, and in potassium hydroxide solution, leaving not more than a small quantity of impurities. Its alcoholic solution should acquire a blue color on the addition of ferric chloride solution.

Add 15 g of petroleum benzin to 2 g of its powder, set aside for 30 minutes with frequent strong shaking, and then filter; 10 ccm of the colorless filtrate, when gently shaken with an equal volume of copper acetate solution, should produce no green color in the upper layer.

O RESINA JALAPAE.

Jalap Resin.

Jalap, *in coarse powder* .... 1 *pt.*
Alcohol .... 6 *pts.*

Pour 4 parts of alcohol on the powder, extract by heating, under frequent agitation, for 24 hours, and express. On the residue pour again 2 parts of alcohol, extract by heating as before, and express. Unite the expressed liquids, filter, distil off the alcohol, and repeatedly wash the remaining resin with warm water, until the washing becomes colorless. Dry the residue by heating on a water bath with constant stirring.

Brittle, brown masses, translucent at the edges; having a lustrous fracture; easily soluble in alcohol, but insoluble in carbon disulphide.

Warm 1 part of Jalap Resin with 10 parts of ammonia water in a well-stoppered flask; it should dissolve nearly completly. The solution, when evaporated, should yield a residue, which is soluble in water, leaving not more than a little insoluble resin. The same ammoniacal solution, when supersaturated with acetic acid, should produce no more than a slight turbidity.

Warm 1 g of the powdered resin with 10 g of pure chloroform, and filter; the filtrate, when evaporated to dryness, should leave not more than 0,1 g of residue.

Triturate 1 part of Jalap Resin with 10 parts of water, and filter; an almost colorless filtrate should be obtained.

Preserve it with care.

Maximum dose at a time: 0,5 g.
Maximum dose for a day: 1,5 g.

RESINA PINI.

Pine Resin.

The resin produced by spontaneous drying of turpentine, which exudes from the stems of the several species of Pinus.

Yellow or brownish-yellow masses, having a faint, turpentine-like odor and a conchoidal fracture ; more or less translucent ; brittle ; melting when heated on a water bath ; soluble in alcohol, and in caustic alkali solution.

When dissolved in alcohol, Pine Resin should leave not more than a small quantity of insoluble impurities.

RESINA PODOPHYLLI.

Podophyllum Resin.

The resin obtained from the root of Podophyllum peltatum *L.*

A yellow or greenish-brown powder, or yellowish or brownish-gray masses ; taste bitter ; turning darker without melting, when heated to 100°; almost insoluble in water, but considerably soluble in ether.

Shake Podophyllum Resin with water, and filter ; the resulting filtrate is almost colorless, and shows a neutral reaction. The same filtrate acquires, with ferric chloride solution, a light brown color, and, with lead subacetate solution, it acquires a yellow color, producing a slight turbidity, and deposits, after 2–3 hours, a reddish-yellow, flocculent precipitate.

1 part of Podophyllum Resin is soluble in 10 parts of warm alcohol, and in 100 parts of ammonia water. The alcoholic solution, on the addition of water, or the ammoniacal solution, on neutralization with acids, produces a brown precipitate.

On incineration, it should leave not more than 1 per cent. of solid residue.

Preserve it with care.

Maximum dose at a time : 0,1 g.
Maximum dose for a day : 0,3 g.

RESORCINUM.

Resorcin.

$C_6H_6O_2 = 110,08$

Colorless or faintly pink crystals, having a characteristic odor and an acrid, slightly sweet taste ; soluble in about 1 part of water or alcohol, easily soluble in ether, and in glycerin, but difficultly soluble in chloroform, and in carbon disulphide. Melting point : 110–111°.

An aqueous solution of Resorcin produces a white precipitate with lead subacetate solution.

Carefully warm 0,05 g of Resorcin with 0,1 g of tartaric acid and 10 drops of sulphuric acid ; a dark carmine-red liquid is produced.

An aqueous solution (1 : 20) of Resorcin should be colorless, and not more than slightly acid to litmus, nor should it emit any odor of carbolic acid even on warming.

On incineration, Resorcin should leave not more than 0,1 per cant of solid residue.

Preserve it protected from light.

RHIZOMA COPTIDIS.

Coptis Rhizome.

The dried rhizome of the plants belonging to the genus Coptis, grown in Japan.

Coptis Rhizome about 1–5 mm in diameter, and attaining 4 cm in length, usually curved, beset with numerous thin rootlets, and provided here and there with warty protuberances. It often bears at the crown the remains of leaf-stalks. It has externally a yellowish-gray color, and shows a sharp, rough fracture.

The cross section of the rhizome exhibits a thick, dark orange-colored bark and a pale yellow wood, at the centre of which lies a large pith which is often hollow.

It has no odor, but a very bitter taste.

RHIZOMA FILICIS.

Male Fern Rhizome.

The dried rhizome of Dryopteris Filix mas *Schott.*, or of Dryopteris crassirhizoma *Nakai*, collected in the autumn together with stipe-base, about 3 cm long.

Male Fern Rhizome should be freed, as much as possible, from the roots and scales, but it should never be peeled.

The stipe-base is brown and edged, attaining a diameter of about 1 cm. The cross section of the rhizome is greenish, and shows 6–10 fibro-vascular bundles.

It has a characteristic, faint odor and a slightly sweet, sharp and astringent taste.

Preserve it with care.

RHIZOMA HYDRASTIS.

Hydrastis Rhizome.

The dried rhizome and roots of Hydrastis canadensis *L.*

Hydrastis Rhizome dark brownish-gray in color, 5-8 mm in diameter, attaining 5 cm in length, and with a greenish-yellow fracture. On the surface of the rhizome arise numerous roots, attaining 1 mm in diameter, and having a yellow cross section.

When examined under the microscope, the cross sections of the rhizome exhibit a thin corky layer, and consists chiefly of parenchymatous cells, which contain starch grains, 0,003–0,02 mm in diameter. The pith is large, and is surrounded by 10–20 usually 14 fibro-vascular bundles.

Macerate 1 part of the drug with 100 parts of water; the extract has a yellow color and a bitter taste. Add 2 ccm of the extract to 1 ccm of sulphuric acid, and, after cooling, quietly pour on it chlorine water, so as to form 2 layers; a dark red color is produced at the line of contact.

It has a faint odor and a bitter taste.

Add 120 ccm of ether to 6 g of Hydrastis Rhizome, in fine powder and dried at 100°, frequently shake for 10 minutes, then add 5 ccm of ammonia water, and set aside for 30 minutes, with frequent strong shaking. Add 10 ccm of water, shake vigorously, then set aside, and quickly filter the clear ethereal solution through purified cotton.

Distil 100 ccm of the filtrate to about half volume, transfer the residue, after cooling, to a separator, shake it with 3 successive portions of 20 ccm each of a mixture of 1 part of diluted hydrochloric acid and 19 parts of water, filter the combined acid solution, and wash the filter paper with a small quantity of water. Make the filtrate strongly alkaline with ammonia water, and shake, at first, with 40 ccm, then 20 ccm, and at last twice with 10 ccm each of ether.

Filter the combined ethereal solution through purified cotton into a small flask, which has been previously dried and weighed, wash the filter with 3 successive portions of 5 ccm each of ether, and distil off the ether; the residue, dried at 100°, should weigh at least 0,1 g.

RHIZOMA IRIDIS.

Orris Rhizome.

The dried rhizome of Iris germanica *L.*, Iris pallida *Lam.*, and Iris florentina *L.*, divested of the corky layer.

Orris Rhizome is white, 4 cm or less in thickness, somewhat flattened on the upper side, which is marked with minute, transverse scars due to the vascular bundles of the leaves, and bearing brownish root-scars on the lower side.

The tissue is rich in starch grains, having suberised oxalate cells, which contain single, prismatic crystals, attaining a length of 0,25 mm and surrounded by mucilage. It is free from sclerenchymatous cells.

It has a charactertstic odor and a slightly aromatic, sharp taste.

O RHIZOMA RHEI.

Rhubarb.

The dried rhizome of Rheum tanguticum *Tschirch*, deprived of most of the bark and occasionally split into longitudinal pieces.

Yellowish pieces of various forms, frequently with perforations ; compact and heavy ; fracture granular, presenting a mottled appearance, the white parenchyma being entangled with yellowish-brown spots and striae.

Under the microscope, cross sections of Rhubarb show radial structure only near the cambium ; scattered among the parenchyma are numerous, brown, stellate groups of fibro-vascular bundles, the latter having tracheae in the outer part and separated by a cambium ring from the phloem.

Rhubarb is chiefly composed of parenchymatous cells, which contain starch grains, rosette aggregates of oxalate and yellow substances.

Its powder is of deep orange-yellow color and contains starch grains, fragments of parenchymatous cells, reticulate tracheal fragments, and large rosette aggregates of oxalate with their fragments, but no sclerenchymatous cells. The starch grains are spherical, attaining a diameter of 0,003-0,018 mm, or occasionaly of 0,03 mm. The rosette aggregates of oxalate occasionally more than 0,1 mm in diameter.

Rhubarb is colored deep reddish-yellow by sodium hydroxide solution.

Odor characteristic, aromatic ; taste slightly bitter, and gritty when chewed.

On incineration, it should leave not more than 13 per cent. of solid residue.

RHIZOMA SCOPOLIAE.

Scopolia Rhizome.

The dried rhizome of Scopolia japonica *Maxim.*

Scopolia Rhizome is externally grayish-brown, considerably shrivelled, attaining about 1,5 dm in length, and 3 cm in thickness, more or less bent, contracted here and there into segments, and occasionally with the stem-bases at the apex ; on the upper surface of each segment are seen the stem-scars, and on both sides and on the lower surface, scars of the cut rootlets ; fracture granular.

The whitish or grayish-brown transverse section appears often loose and spongy ; the bark somewhat paler ; near the external boundary of the wood lie fibro-vascular bundles, arranged almost redially and surrounding the big pith.

It smells unpleasant, and tastes slightly bitter and acrid.

Add 120 ccm of ether to 12 g of Scopolia Rhizome, in fine powder and dried at 100°, occasionally shake for 10 minutes, then add 5 ccm of ammonia water, and set aside for 30 minutes with frequent strong shaking. Add 10 ccm or more of water, shake strongly, and allow the mixture to settle. Rapidly filter the clear ethereal solution through purified cotton, and distil off the ether from 80 ccm of the filtrate.

Dissolve the residue, by gentle heat, in 5 ccm of absolute alcohol, add 10 ccm of water, 30 ccm of ether and 3 drops of haematoxylin solution, and titrate it with hundredth-normal hydrochloric acid volumetric solution with light shaking, until a reddish-brown color is produced. Then add 30 ccm of water, and continue the titration with frequent strong shaking; at least 9,7 ccm of the hundredth-normal volumetric solution should be required to produce a yellow color in the lower aqueous solution.

Preserve it with care.

Maximum dose at a time : 0,1 g.
Maximum dose for a day : 0,3 g.

RHIZOMA VALERIANAE.

Kesso Rhizome. *Japanese Valerian Rhizome.*

The dried rhizome and roots of Valeriana officinalis *L. var.* latifolia *Miq.*

It is of grayish-brown color ; rhizome about 1,5 cm long and attaining 1 cm in diameter, bearing buds or stem-bases at the apex, and laterally with branched stolons or their remnants and numerous roots. The root attains 3 mm in diameter and 2 dm in length.

Section of the rhizome is horny, having light dots, consisting of stone cell groups, and occasionally hollow in the pith. Cross section of the stolon is obviously divided into the bark and the wood, bordered by the cambium and adjacent dark line, along which many fibro-vascular bundles are scattered ; characteristic stone cell groups are found in the pith.

Cross section of the root is dark brown, and the wood is remarkably narrower than the bark ; under the microscope, epidermal cells, often modified to root hairs, and hypodermal cells, which contain ethereal oil. The wood is separated from the bark by 1 layer of endodermis ; the parenchymatous cells of the bark, filled with starch grains, attaining 0,02 mm in diameter.

It has a characteristic, aromatic odor and an aromatic, faintly bitter taste.

RHIZOMA ZEDOARIAE.

Zedoary Rhizome.

The dried tuberous rhizome of Curcuma Zedoaria *Rosc.*, mostly cut transversely or longitudinally.

Zedoary Rhizome is 2,5–4 cm in diameter, externally gray, marked with numerous root-scars. The transverse section is gray, and shows the bark, about 2–5 mm thick. The disc-shaped drug shows mostly depressed vascular strands.

The parenchyma contains large and flat starch grains, with an excentric stratification.

It has a camphoraceous odor and a bitter taste.

RHIZOMA ZINGIBERIS.

Ginger.

The dried rhizome of Zingiber officinale *Rosc.*

Ginger is flat, irregularly branched, and covered with gray corky layer, which is often partially removed. The fracture is whitish or pale grayish-white, granular, and rich in starch grains, showing numerous fibro-vascular bundles. The central cylinder is very thick, and is surrounded by the bark, not thicker than 1 mm. The secretory-reservoirs are uniformly distributed in the parenchyma.

It has a characteristic, aromatic odor and an aromatic, pungent, burning taste.

SACCHARINUM.

Saccharin.

$C_7H_5NO_3S = 183,15$

A white, crystalline powder; odorless and having an intensely sweet taste, sweet even when dissolved in 10000 times its weight of water; soluble in about 400 parts of water, and in 30 parts of boiling water, showing an acid reaction, soluble in 32 parts of alcohol, difficultly in ether, but easily in sodium hydroxide solution, and in sodium carbonate solution. Melting point: 219–224°.

Carefully fuse Saccharin with potassium hydroxide, and treat the residue with water; the solution, slightly acidified with hydrochloric acid, becomes violet on the addition of diluted ferric chloride solution.

Saccharin should not be colored by sulphuric acid, nor the mixture should develop any more than a faintly yellow color when warmed on a water bath.

On incineration, Saccharin should leave not more than 0,5 per cent. of solid residue.

SACCHARINUM SOLUBILE.

Soluble Saccharin.

$NaC_7H_4NO_3S + 2H_2O = 241,17$

A white, crystalline powder, or colorless, translucent crystals; slightly efflorescent in the air; taste intensely sweet, distinct even when dissolved in 10000 times its weight of water; easily soluble in water, and in diluted alcohol, showing a neutral reaction.

Carefully fuse the salt with potassium hydroxide, and treat the residue with water; the solution, slightly acidified with hydrochloric acid, becomes violet on the addition of diluted ferric chloride solution.

The residue, obtained by incinerating the salt, imparts a yellow color to a non-luminous flame.

Dissolve 0,5 g of the salt in 25 ccm of water, add 1 ccm of diluted hydrochloric acid, and set aside for 2–3 hours; the resulting precipitate, collected on a filter paper, washed with water, and dried at 100°, should melt at 219–224°.

An aqueous solution (1 : 10) of the salt should not more than slightly turn a red litmus paper blue. Add nitric acid to the same solution, and filter off the resulting precipitate; the filtrate should neither be affected by barium nitrate solution, nor produce any more than an opalescence with silver nitrate solution.

Warm 0,1 g of the salt with 5 ccm of sulphuric acid on a water bath; the mixture should produce no more than a faint brown color.

On incineration, 0,5 g of the salt should burn out leaving 0,14-0,17 g of solid residue.

Preserve it in well-stoppered bottles.

SACCHARUM.

White Sugar. *Refined Sugar.*

$C_{12}H_{22}O_{11} = 342,24$

Colorless, translucent, dry crystals, or a pure white, dry, crystalline mass or powder; odorless, and having an intensely sweet taste; soluble in 0,5 parts of water.

10 g of White Sugar should dissolve colorlessly and clearly in 5 ccm of water; the solution should be neutral to litmus, and clearly miscible in all proportions with alcohol.

An aqueous solution (1 : 20) of White Sugar should neither be affected by hydrogen sulphide water, nor produce any more than an opalescence with ammonium oxalate solution, silver nitrate solution, or with barium nitrate solution.

Boil 6 ccm of an aqueous solution (1 : 20) of White Sugar with 5 ccm of Fehling's solution ; no yellow or reddish precipitate should immediately be produced.

On incineration, White Sugar should leave not more than 0,1 per cent. of solid residue.

O SACCHARUM LACTIS.

Milk Sugar.

$C_{12}H_{22}O_{11}+H_2O=360,25$

Whitish, crystalline masses, or a white powder ; odorless, and having a slightly sweet taste ; soluble in 1 part of boiling water.

An aqueous solution of Milk Sugar becomes yellow on heating with sodium carbonate solution, and then black on boiling for 2–3 minutes with bismuth subnitrate.

A boiling aqueous solution (1 : 2) of Milk Sugar should be colorless or at most faintly yellowish.

An aqueous solution (1 : 20) of Milk Sugar should hardly affect litmus papers, nor should it produce any more than a very slight turbidity with silver nitrate solution, or with barium nitrate solution.

Sprinkle 1 g of Milk Sugar upon 5 ccm of sulphuric acid, contained in a shallow dish, and set aside for 1 hour below 15° ; no more than a faint color should develop.

On incineration, Milk Sugar should leave not more than 0,2 per cent. of solid residue.

O SAL CAROLINUM FACTITIUM.

Artificial Salt of Karlsbad.

Exsiccated Sodium Sulphate	22 *p/s.*
Potassium Sulphate	1 *pt.*

Sodium Chloride	9 *pts.*
Sodium Bicarbonate	18 *pts.*

Reduce the salts above mentioned to a medium powder, and mix them.

A white, dry powder, which is soluble in water and briskly effervesces with acids.

Dissolve 6 g of the salt in 1 L of water ; a liquid, resembling Karlsbad water, is obtained.

SANDARACA.

Sandarac.

The resin obtained from the stem of Callitris quadrivalvis *Vent.*

Light yellow, translucent granules, with a faintly bitter taste. When heated, it emits a pleasant odor, melts, and finally burns on further heating.

Sandarac is partly soluble in cold alcohol, and completely soluble in boiling alcohol, and in turpentine oil.

O SANTONINUM.

Santonin.

$C_{15}H_{18}O_3 = 246{,}22$

Colorless, shining laminae, turning yellow on exposure to light ; soluble in 5000 parts of water, and in 44 parts of alcohol, the solution showing a neutral reaction, and soluble in 4 parts of chloroform. Melting point : about 170°.

Dissolve Santonin by boiling in a mixture of equal volumes of sulphuric acid and water, and add a small quantity of ferric chloride solution ; a violet color develops.

When moistened with nitric acid or with sulphuric acid, previously cooled to 0°, Santonin should not be colored immediately.

Boil 1 part of Santonin with 100 parts of water and 5 parts of diluted sulphuric acid, allow the mixture to cool for a long time, and then filter ; the filtrate should have no bitter taste, nor produce any precipitate on the addition of 2–3 drops of potassium bichromate solution.

Shake 0,01 g of Santonin, in powder, with a cold mixture of 1 ccm each of sulphuric acid and water ; it should not be colored.

On incineration, Santonin should leave not more than 0,1 per cent. of solid residue.

Preserve it with care, protected from light.

Maximum dose at a time : 0,1 g.
Maximum dose for a day : 0,3 g.

SAPO JALAPINUS.

Jalap Soap.

Jalap Resin, *in fine powder.*
Medicinal Soap.

Mix jalap resin with an equal part of medicinal soap.

A yellowish-gray powder.

SAPO KALINUS.

Potash Soap.

Linseed Oil	43 *pts.*
Solution of Potassium Hydroxide	58 *pts.*
Alcohol	5 *pts.*

Warm linseed oil in a porcelain dish on a water bath, add with stirring solution of potassium hydroxide and alcohol, and warm the mixture, until it forms a transparent soap glue and its small portion clearly dissolves in alcohol. Then evaporate it or add warm distilled water to make the product weigh 100 parts.

A transparent, yellowish-brown, homogeneous, unctuous mass, with a faint, not offensive odor; clearly soluble in 2 parts of water, and in alcohol.

A solution of 10 g of Potash Soap in 30 ccm of alcohol should neither become turbid on the addition of 0,5 ccm of normal hydrochloric acid volumetric solution, nor become red on the further addition of 1 drop of phenolphthalein solution.

Weigh 5 g of Potash Soap in a flask, dissolve it in 100 ccm of boiling water, and warm the solution on a water bath with 15 ccm of diluted sulphuric acid, until a clear, oily liquid swims on the aqueous layer. Then add to the cooled mixture 50 ccm of petroleum benzin, and agitate the stoppered flask; 25 ccm of the petroleum benzin solution should leave, when evaporated and dried at a temperature not exceeding 75°, at least 1 g of residue.

SAPO MEDICATUS.

Medicinal Soap.

Sodium Hydroxide Solution (specific gravity : 1,17)	120 *pts.*
Hog's Lard	50 *pts.*
Olive Oil	50 *pts.*
Alcohol	12 *pts.*
Sodium Chloride	25 *pts.*
Sodium Carbonate	3 *pts.*
Distilled Water	280 *pts.*

Warm sodium hydroxide solution on a water bath, gradually add with stirring a melted mixture of hog's lard and olive oil, warm the mixture for 30 minutes, then add alcohol, and stir until it becomes homogeneous. Then gradually add 200 parts of distilled water, and heat the mixture, adding, if necessary, a small quantity of sodium hydroxide solution, until a transparent soap glue is obtained, a small portion of which clearly dissolves in boiling water.

Add to the soap glue a filtered solution of sodium chloride and sodium carbonate in 80 parts of distilled water, heat with stirring to separate the soap completely, and, after cooling, remove the mother liquor. Repeatedly wash the remaining soap with a small quantity of distilled water, press strongly, cut into small pieces, dry in a warm place, and finally reduce it to a powder.

A white powder, having no rancid odor ; soluble in water, and in alcohol.

Dissolve 1 g of the soap, by warming, in 5 ccm of alcohol ; the solution should neither become red on the addition of 1 drop of phenolphthalein solution, nor be affected by hydrogen sulphide water.

Preserve it in well-stoppered bottles.

SAPO VIRIDIS.

Green Soap.

A greenish or yellowish-brown, transparent, unctuous mass ; entirely or almost clearly soluble in 2 parts of water.

Dissolve 5 g of Green Soap in 10 ccm of boiling water, and add to the solution, after cooling, an equal volume of alcohol ; it should neither become turbid nor produce any flocculent precipitate on the addition of 2 drops of hydrochloric acid.

Weigh 5 g of Green Soap in a flask, dissolve it in 100 ccm of boiling water, and warm the solution with 15 ccm of diluted sulphuric acid on a water bath, until a clear, oily liquid swims on the aqueous layer. Then add 50 ccm of petroleum benzin to the cooled mixture, stopper the flask, and agitate ; 25 ccm of the petroleum benzin solution should leave, on evaporating in a beaker and drying at a temperature not exceeding 75°, at least 1 g of residue.

SATURATIONES.

Saturations.

Saturations are the mixtures which contain carbon dioxide, prepared by the saturation of solutions of acids with alkali carbonates.

When a saturation is prescribed without the description of ingredients and their weight, prepare it as follows :

Citric Acid	4 *pts.*
Sodium Carbonate	9 *pts.*
Water	190 *pts.*

Saturations should be prepared when wanted for use.

SCOPOLAMINUM HYDROBROMICUM.

Scopolamine Hydrobromide.

$C_{17}H_{21}NO_4.HBr + 3H_2O = 438,24$

Colorless, prismatic crystals, or a white, crystalline powder ; odorless, and having a bitter, acrid taste ; easily soluble in water, and in alcohol, forming a colorless, slightly acid solution, sparingly soluble in ether, and in chloroform. Melting point of the salt, dried at 110° : about 190°.

An aqueous solution (1 : 20) of the salt produces, with silver nitrate solution, a yellowish precipitate, and, with sodium hydroxide solution, a whitish, transient turbidity ; but it remains unaffected by ammonia water.

Add 5 drops of fuming nitric acid to 0,01 g of the salt, contained in a porcelain dish, and evaporate it on a water bath ; the faintly yellowish residue, after cooling, yields a violet color upon the addition of alcoholic potassium hydroxide solution.

Dissolve 0,05 g of the salt in 5 ccm of water, and add to the solution 1 drop of potassium permanganate solution ; the color should not fade within 5 minutes.

When dried at 100°, the salt should lose not more than about 12 per cent. of its weight.

On incineration, the salt should leave not more than 0,1 per cent. of solid residue.

Preserve it with special care.

Maximum dose at a time : 0,0005 g.
Maximum dose for a day : 0,0015 g.

SEBUM BOVINUM.

Ox Tallow.

A fat obtained by heating the fatty tissues of Bos Taurus *L.* with water, washed, and then freed from moisture.

A white or yellowish-white, homogeneous, unctuous mass, having a faint characteristic odor, free from rancidity ; melting at 45–50° to a clear liquid. Iodine value : 33–53. Saponification value : 193–200. Degrees of acidity : not more than 2.

SECALE CORNUTUM.

Ergot.

The sclerotium of Claviceps purpurea *Tul.*, developed on Secale cereale *L.*, and dried by gentle heat.

Ergot is usually obscurely 3-angled, somewhat curved, 10–30 mm long, 2,5–5 mm thick, tapering towards both ends, mostly with longitudinal furrows and transverse fissures ; externally dark violet to black ; the fracture shows epidermal layer of purplish-black color and internal layer of grayish-white or light purplish-red color. Under the microscope, the hyphae constructing parenchyma-like tissue, containing oil globules.

It has an insipid taste. Pour 10 parts of boiling water upon 1 part of Ergot ; a characteristic odor, but no ammoniacal or rancid odor should develop.

It should not be kept in form of powder.

Preserve it with care, in well-closed containers, after drying in an exsiccator.

Maximum dose at a time : 1 g.
Maximum dose for a day : 5 g.

SEMEN COLCHICI.

Colchicum Seed.

The seed of Colchicum autumnale *L.*

Colchicum Seed is nearly globular, attaining 3 mm in diameter ; cohering, when fresh, through the secretion of sugar ; externally brown, finely pitted or wrinkled ; more or less pointed at the hilum.

The thin, brown seed-coat consists of collapsed cells, and encloses endosperm and embryo, not longer than 0,5 mm. The endosperm consists of gray, thick-walled cells, which are furnished with circular pits, and contain oil globules.

Colchicum Seed has a very bitter taste.

Preserve it with care.

SEMEN LINI.

Linseed.

The seed of Linum usitatissimum *L.*

Linseed is ovate, flattened, 4–6 mm in length, from yellowish to brown, and glossy.

The epidermis of the seed-coat consists of mucilage cells. The thin endosperm and embryo contain fixed oil, but no starch grains.

Linseed has a mild, oily, mucilaginous, but not rancid taste.

SEMEN MYRISTICAE.

Myristica. *Nutmeg.*

The seed of Myristica fragrans *Houtt.*, deprived of the seed-coat, and dried.

Myristica is ovoid or ellipsoidal, attaining about 3 cm in length and 2 cm in breadth ; externally brown, covered with white lime powder, and marked with a bread, flat, longitudinal furrow and narrow, finely reticulated ones.

Cross section of Myristica shows endosperm, filled with fixed oil and starch grains, and entangled with brown stripes of perisperm, which contains aromatic secretion.

Odor aromatic ; taste aromatic and bitter.

SEMEN PHYSOSTIGMATIS. *Faba Calabarica.*

Calabar Bean.

The seed of Physostigma venenosum *Balfour*.

Calabar Bean is oblong, somewhat compressed reniform, hard, attaining about 30 mm in length, 15 mm in breadth and 10 mm in thickness. A groove extends almost the entire length of the convex edge. The seed-coat is brown and glossy, and encloses 2 whitish cotyledons.

Preserve it with care.

SEMEN PRUNI ARMENIACAE.

Apricot Seed.

The seed of Prunus armeniaca *L.*

Apricot Seed is nearly cordate, flattened, attaining about 15 mm in length, 12 mm in breadth and 7 mm in thickness, pointed at one end, and rounded at the other, where the chalaza is situated.

The seed-coat is brown, externally assuming a powdery appearance by thick-walled epidermal cells, which fall off easily, and internally traversed by numerous vascular bundles radiating from the chalaza.

When softened in boiling water, the seed-coat may be removed together with the thin endosperm, and disclose pure white cotyledons.

Taste bitter, but not rancid. When triturated with water, the seed emits an odor of benzaldehyde.

SEMEN SINAPIS.

Mustard.

The seed of Sinapis cernua *Thunb.*, or of Brassica nigra *Koch.*

Mustard is nearly globular, attaining 1,5 mm in diameter, yellowish-brown or dark brown, showing fine pits when examined with a magnifying-glass ; the cotyledons greenish-yellow and conduplicate.

The powder, when examined under the microscope, should be free from oxalate crystals or starch grains.

Weigh 5 g of the powder in a flask, pour 100 ccm of water at 20–25°, and allow the stoppered flask to stand for 2 hours with frequent shaking. Add 20 ccm of alcohol and 2 ccm of olive oil, and distil with careful cooling.

Collect 40-50 ccm of the first distillate in a 100 ccm flask, which contains 10 ccm of ammonia water, then add 20 ccm of tenth-normal silver nitrate volumetric solution, dilute the mixture with water to 100 ccm mark, and allow the stoppered flask to stand for 24 hours with frequent shaking.

Filter the mixture, and add to 50 ccm of the clear filtrate 6 ccm of nitric acid and 1 ccm of ammonium ferric sulphate solution ; the mixture should require not more than 7,2 ccm of tenth-normal ammonium sulphocyanate volumetric solution to produce a red color.

SEMEN STROPHANTHI.

Strophanthus Seed.

The seed of Strophanthus Kombe *Oliver*, freed from the awn.

Strophanthus Seed is lance-ovoid, flattened, pointed at one end, 9-15 mm, rarely attaining 22 mm, in length, attaining 5 mm in breadth and 3 mm in thickness, densely covered with hairs, grayish-green or gray in color. The raphe runs from the hilum, just beneath the apex, through the center of the flat side to the base.

When softened in water and divided, the seed-coat may be removed together with the endosperm, and disclose the embryo, with 2 flat cotyledons and short radicle.

The epidermis of the thin seed-coat consists of large cells, each of them develops at its middle part to a hair, bent towards the apex. The endosperm cells contain oil globules, aleurone grains, and frequently starch grains, not exceeding 0,008 mm in diameter. The cells of the cotyledons and radicle contain aleurone grains, which are smaller than those of the endosperm, and rarely starch grains.

Pour 1 drop of sulphuric acid on the cross section of the seed; the endosperm or at least the outer part of the cotyledon acquires a bluish-green or green color, which gradually changes to red.

Taste bitter.

Preserve it with care.

SEMEN STRYCHNI.

Nux Vomica.

The seed of Strychnos Nux vomica *L.*

Orbicular, occasionally bent, 20–25 mm in diameter, 3–5 mm in thickness, grayish-yellow ; both surfaces covered with silky, radiately arranged, appressed hairs.

The endosperm is hard, horny, and encloses an embryo, about 7 mm in length and with a radicle stretching against the edge where it causes a small prominence.

The epidermal cells of the seed-coat are thick-walled, and develop at the middle to hairs. The endosperm cells are thick-walled, show protoplasmic strands when examined with iodine solution, and are free from starch grains. The section of the endosperm acquires, with fuming nitric acid, an orange-yellow color.

Taste exceedingly bitter.

To 5 g of the seed, in fine powder and dried at 100°, add 5 ccm of diluted hydrochloric acid and 15 ccm of water, and heat on a water bath for about 10 minutes. After cooling, shake the mixture with 35 ccm of chloroform and 90 ccm of ether, then add 8 ccm of sodium hydroxide solution, and shake vigorously for 10 minutes.

Vigorously shake it again with 3 g of tragacanth powder to make the powder settle, allow the mixture to stand for 5 minutes, and then quickly filter the clear, chloroform-ether solution through purified cotton. Distil off the chloroform from 100 ccm of the filtrate, dissolve the residue, by gentle heat, in 5 ccm of absolute alcohol, add 10 ccm of water, 30 ccm of ether and 3 drops of haematoxylin solution, and titrate it with tenth-normal hydrochloric acid volumetric solution with light shaking, until a reddish-brown color is produced. Then add 30 ccm of water, and continue the titration with frequent vigorous shaking; at least 2,8 ccm of tenth-normal hydrochloric acid volumetric solution should be required in order to produce a yellow color in the lower aqueous layer.

Preserve it with care.

Maximum dose at a time: 0,1 g.
Maximum dose for a day: 0,2 g.

O SERUM ANTIDIPHTHERICUM.

Antidiphtheric Serum.

The serum of the horse, immunized against diphtheria toxin, and certificated by the Government.

Antidiphtheric Serum is sealed in glass bottles, furnished with labels, bearing the name of the manufacturer, number of antitoxic units posessed by 1 ccm or 1 g of the serum, volume or weight and the total number of antitoxic units of the content of each bottle, and the number of application. The bottles are packed so as to be protected from light.

(A)

SERUM ANTIDIPHTHERICUM LIQUIDUM.

Liquid Antidiphtheric Serum.

A yellowish, clear or faintly turbid liquid, having an odor of an antiseptic usued as a preservative.

Liquid Antidiphtheric Serum should posess a potency of not less than 500 antitoxic units in 1 ccm. The number of antitoxic units is calculated according to the Ehrlich's method.

Liquid Antidiphtheric Serum should prove sterile when examined by the aerobic or anaerobic culture on agar-agar culture.

When injected subcutaneously, neither 0,5 ccm of the serum should kill a mouse of not less than 15 g in weight, nor 10 ccm of the serum should kill a guinea-pig (Cavia cobaya *Schreb.*, Cavia porcellus *L.*) of about 250 g in weight.

Liquid Antidiphtheric Serum should contain not more than 10 per cent. of proteins, when examined according to the Kjeldahl's method.

Liquid Antidiphtheric Serum should be rejected, when it is conspicuously turbid or when it contains an abundant precipitate.

Preserve it with care, in a cool dark place, but not over 1 year.

(B)

SERUM ANTIDIPHTHERICUM SICCUM.

Dried Antidiphtheric Serum.

Antidiphtheric Serum, dried in the form of yellow, translucent flakes, or yellowish-white powder.

Dried Antidiphtheric Serum should posess a potency of at least 5000 antitoxic units in 1 g, and should contain neither preservative nor other admixture.

A solution of 1 part of the serum in 10 parts of water should have the same appearance as liquid antidiphtheric serum.

A solution of 1 part of the serum in 10 parts of carbolic acid solution (1 : 200) should conform to the tests under *Serum antidiphthericum liquidum.*

Dissolve the serum in carbolic acid water (1 : 200), or in sterilized water, when wanted for use.

Preserve it with care, in a cool dark place.

SERUM ANTITETANICUM.

Antitetanic Serum.

The serum of the horse, immunized against tetanus toxin, and certificated by the Government.

Antitetanic Serum is sealed in glass bottles, furnished with labels, bearing the name of the manufacturer, number of antitoxic units posessed by 1 ccm or 1 g of the serum, volume or weight and the total number of antitoxic units of the content of each bottle, and the number of application.

The bottles are packed so as to be protected from light.

(A)

SERUM ANTITETANICUM LIQUIDUM.

Liquid Antitetanic Serum.

A yellowish, clear or faintly turbid liquid, having an odor of an antiseptic used as a preservative.

Liquid Antitetanic Serum should posess a potency of not less than 5 antitoxic units in 1 ccm. The number of antitoxic units is calculated according to the Behring's method.

Liquid Antitetanic Serum should prove sterile when examined by the aerobic or anaerobic culture on agar-agar culture.

When injected subcutaneously, 0,5 ccm of the serum should not kill a mouse of not less than 15 g in weight.

Liquid Antitetanic Serum should contain not more than 10 per cent. of proteins, when examined according to the Kjeldahl's method.

Liquid Antitetanic Serum should be rejected, when it is conspicuously turbid or when it contains an abundant precipitate.

Preserve it with care, in a cool dark place, but not over 1 year.

(B)

SERUM ANTITETANICUM SICCUM.

Dried Antitetanic Serum.

Antitetanic Serum, dried in the form of translucent flakes or a yellowish-white powder.

Dried Antitetanic Serum should posess a potency of at least 50 antitoxic units in 1 g, and should contain neither preservative nor other admixture.

A solution of 1 part of the serum in 10 parts of water should have the same appearance as liquid antitetanic serum.

A solution of 1 part of the serum in 10 parts of carbolic acid water (1 : 200) should conform to the tests under *Serum antitetanicum liquidum.*

Dissolve the serum in carbolic acid water (1 : 200), or in sterilized water, when wanted for use.

Preserve it with care, in a cool dark place.

SIRUPI.

Syrups.

Syrups are the aqueous solution of sugar or the preparations, obtained by dissolving sugar or simple syrup in the aqueous, alcoholic or vinous solution of medicinal substances.

Syrups should be prepared, unless a special description is given, by dissolving sugar or simple syrup in the prescribed liquid, each in proper proportion, and, after boiling, by straining while still warm.

Syrups should be preserved in well-dried, completely filled containers, in a cool place.

Syrups, which contain precipitate or have undergone fermentation, should be rejected.

SIRUPUS ABELMOSCHI.

Syrup of Abelmoschus.

Abelmoschus Root, *coarse cut*	2 *pts.*
Alcohol	1 *pt.*
Distilled Water	50 *pts.*
White Sugar	63 *pts.*

Wash the drug with distilled water, pour a mixture of alcohol and distilled water, and macerate it for 3 hours without agitation.

Strain the mixture through a piece of cloth, and in 37 parts of the strained liquid dissolve the sugar.

A pale yellow, slimy syrup.

SIRUPUS ALTHAEAE.

Syrup of Althaea.

Althaea Root, *coarse cut*	2 *pts.*
Alcohol	1 *pt.*
Distilled Water	50 *pts.*
White Sugar	63 *pts.*

Wash the drug with distilled water, pour a mixture of alcohol and distilled water, and macerate it for 3 hours, without agitation.

Strain the mixture through a piece of cloth, and in 37 parts of the strained liquid dissolve the sugar.

A pale yellow, slimy syrup.

SIRUPUS AURANTII CORTICIS.

Syrup of Bitter Orange Peel.

Tincture of Bitter Orange Peel	15 *pts.*
Syrup	85 *pts.*

Mix them.

A yellowish-brown syrup, having an aromatic odor.

SIRUPUS CINNAMOMI.

Syrup of Cassia.

Cassia Bark, *in coarse powder*	1 *pt.*
Cinnamon Water	5 *pts.*
White Sugar	6 *pts.*

Pour cinnamon water on the powder, and macerate with frequent shaking for 2 days. Filter, and dissolve the sugar in 4 parts of the filtrate.

A reddish-brown syrup.

O SIRUPUS FERRI JODATI.

Syrup of Ferrous Iodide.

Iron Powder	12 *pts.*
Iodine	41 *pts.*
Distilled Water	50 *pts.*
Syrup	850 *pts.*

Gradually add iodine, with stirring, to a mixture of iron powder and distilled water, filter the resulting greenish liquid by means of a small filter into syrup at ordinary temperature, and then rinse the filter with a suitable quantity of distilled water to make the product weigh 1000 parts.

An almost colorless, or pale green, or pale yellow, clear syrup, which contains 5 per cent. of pure ferrous iodide ($FeJ_2 = 309{,}68$).

Dilute 1 g of the syrup with about 50 ccm of water, acidify it with diluted nitric acid, and add a slight excess of silver nitrate solution. Carefully wash the resulting precipitate, then pour 5 ccm of ammonia water, and filter; the filtrate, when supersaturated with nitric acid, should produce no more than a faint whitish turbidity.

Dilute 2 g of the syrup with 50 ccm of water, and add 20 ccm of tenth-normal silver nitrate volumetric solution and 1 ccm each of nitric acid and ammonium ferric sulphate solution ; the mixture should require not more than 13,6 ccm of tenth-normal ammonium sulphocyanate volumetric solution in order to produce a red color.

Preserve it in well-stoppered, colorless bottles, which contain iron wires, in a light place.

SIRUPUS IPECACUANHAE.

Syrup of Ipecacuanha.

Tincture of Ipecacuanha	1 *pt.*
Syrup	9 *pts.*

Mix them.

A yellowish syrup.

SIRUPUS MANNAE.

Syrup of Manna.

Manna	10 *pts.*
Alcohol	2 *pts.*
Distilled Water	33 *pts.*
White Sugar	55 *pts.*

Dissolve manna in a mixture of alcohol and distilled water, filter, and dissolve the sugar in 45 parts of the filtrate.

A yellowish syrup.

SIRUPUS MENTHAE.

Syrup of Peppermint.

Peppermint Leaves, *in coarse powder*	2 *pts.*
Alcohol	1 *pt.*
Distilled Water	10 *pts.*
White Sugar	13 *pts.*

Moisten the leaves with alcohol, pour distilled water on it, and macerate it for 24 hours with frequent stirring. Express, then filter the expressed liquid, and dissolve the sugar in 7 parts of the filtrate.

A greenish-brown syrup.

SIRUPUS POLYGALAE.

Syrup of Onji.

Onji, *medium cut*	1 *pt.*
Distilled Water	9 *pts.*
Alcohol	1 *pt.*
White Sugar	12 *pts.*

Pour on the drug a mixture of distilled water and alcohol, macerat it for 2 days, express, filter, and dissolve the sugar in 8 parts of th filtrate.

A yellowish syrup.

SIRUPUS RHEI.

Syrup of Rhubarb.

Rhubarb, *coarse cut*	10 *pts.*
Potassium Carbonate	1 *pt.*
Borax	1 *pt.*
Distilled Water	80 *pts.*
Cinnamon Water	20 *pts.*
White Sugar	120 *pts.*

Pour distilled water on the mixture of rhubarb, potassium carbonat and borax, macerate it for 12 hours, and then strain. Boil the straine liquid, filter, mix cinnamon water with 60 parts of the filtrate, an finally dissolve the sugar.

A brownish-red syrup.

SIRUPUS RUBI.

Syrup of Raspberry.

rush fresh fruits of Rubus Idaeus *L.* or of Rubus Tokkura *Sieb.*, er, and set aside with frequent stirring at about 20°, until a small tion of the filtered juice, on being mixed with half its volume of ohol, produces no turbidity. Press, filter, and dissolve 13 parts of ite sugar in 7 parts of the filtrate.

A red syrup.

Dilute 10 ccm of Syrup of Raspberry with an equal volume of water, d 5 ccm of potassium bisulphate solution, introduce 2–3 woolen strings, e from fat, into the mixture, boil for 10 minutes, and wash the strgs with water ; they should not be dyed red.

SIRUPUS SENEGAE.

Syrup of Senega.

Senega Root, *medium cut*	1 *pt.*
Distilled Water	9 *pts.*
Alcohol	1 *pt.*
White Sugar	12 *pts.*

Pour a mixture of distilled water and alcohol on the drug, macerate for 2 days, express, filter, and dissolve the sugar in 8 parts of the ltrate.

A yellowish syrup, which acquires, with ferric chloride solution, a rownish-green color.

SIRUPUS SENNAE.

Syrup of Senna.

Senna Leaves, *medium cut*	10 *pts.*
Fennel Fruit, *crushed*	1 *pt.*
Alcohol	5 *pts.*
Distilled Water	60 *pts.*
White Sugar	65 *pts.*

Moisten the drugs with alcohol, pour distilled water, and macerate it for 12 hours. Strain without pressing, boil the strained liquid, filter, and, after cooling, dissolve the sugar in 35 parts of the filtrate.

A brown syrup.

O SIRUPUS SIMPLEX.

Syrup. *Simple Syrup.*

White Sugar	65 *pts.*
Boiling Distilled Water	35 *pts.*

Dissolve the sugar in boiling distilled water.

A clear, colorless, odorless syrup. Specific gravity : 1,32.

SIRUPUS ZINGIBERIS.

Syrup of Ginger.

Tincture of Ginger	1 *pt.*
Syrup	9 *pts.*

Mix them together.

A slightly turbid, pale yellow syrup.

SPECIES.

Teas.

Teas are the mixtures of vegetable drugs, sometimes cut, with each other or with other medicines, or rarely the mixtures, moistened with solutions of other medicines and dried.

In case of teas for the preparation of infusion or decoction, the drugs should be coarsely cut or medium cut, and for tea-mixture, the drugs should be finely cut. Teas for fomentation should be in coarse powder.

SPIRITUOSA MEDICATA.

Spirituous Liquors.

Spitituous Liquors are the solutions of medicines in alcohol, or the mixtures of alcohol and medicines, or the products obtained by distillation of the mixtures.

O SPIRITUS.

Alcohol. *Spirit.*

A colorless, clear, volatile liquid, of neutral reaction; having a characteristic, penetrating odor and a burning taste. It burns with a pale blue flame on ignition. Specific gravity : 0,830-0,834.

Alcohol contains 91,29-90,09 per cent. by volume, or 87,35-85,80 per cent. by weight, of pure ethyl alcohol ($C_2H_6O=46,06$).

It should have no foreign odor, and should be clearly miscible with water.

Add 1 ccm of silver nitrate solution to 10 ccm of Alcohol, diluted with an equal volume of water, then add ammonia water until the precipitate first produced is dissolved, and allow the solution to stand in a dark place; it should neither be colored nor be rendered turbid within 5 minutes.

Evaporate 10 ccm of Alcohol with 0,2 ccm of potassium hydroxide solution until it becomes about 1 ccm, and then supersaturate it with diluted sulphuric acid; no odor of fusel oil should be evolved.

Carefully pour 5 ccm of Alcohol upon 5 ccm of sulphuric acid in a test tube, so as to form 2 layers; no rose-red zone should appear at the line of contact, even on standing for a long time.

A mixture of 10 ccm of Alcohol and 1 ccm of potassium permanganate solution should not turn yellow within 20 minutes.

Distil 100 ccm of Alcohol slowly, at the rate of 10 drops or less per 1 minute, transfer 0,1 ccm from 10 ccm of the first distillate into a test tube, then add 5 ccm of potassium permanganate solution (1 : 100) and 0,2 ccm of sulphuric acid, and allow the mixture to stand for 2–3 minutes. Add 1 ccm of oxalic acid solution (1 : 12), and, when the mixture has become yellow, shake with 1 ccm of sulphuric acid to complete decoloration. Add 5 ccm of fuchsin sulphurous acid solution, gently shake the stoppered test tube, and set it aside; no color, or, if any, not more than a faint blue color should develop within 1 hour.

Shake the whole remainder of the first distillate with 250 ccm of potassium permanganate solution (1 : 100) and 10 ccm of sulphuric acid, allow the mixture to stand for 2–3 minutes, then discharge its color with oxalic acid solution (1 : 12), and distil.

During the distillation occassionally take about 5 ccm of the distillate, add about 0,03 g of phenylhydrazine hydrochloride, 4 drops of sodium nitroprusside solution (1 : 40) and 1 ccm of sodium hydroxide solution (1 : 10), and repeat the procedure until the mixture is no more colored dark red. Then change the receiver, collect the distillates, mix with 3 g of calcium carbonate, and distil once more.

Add an excess of ammonia water to the distillate, and evaporate the mixture at a temperature not exceeding 80°. Take 2 drops of the concentrated liquid on an object glass, add 1 drop of mercuric chloride solution, and inspect it under the microscope; no radiated crystals should be found.

Alcohol should not be colored by hydrogen sulphide water, or by ammonia water.

Evaporate 5 ccm of Alcohol on a water bath; no weighable residue should be left.

Preserve it in well-stoppered bottles.

SPIRITUS AETHEREUS. *Liquor Hoffmanni.*

Spirit of Ether. *Hoffmann's Solution.*

Ether	1 *pt.*
Alcohol	3 *pts.*

Prepare by mixing them.

A clear, colorless, volatile liquid, showing a neutral reaction. Specific gravity: about 0,805–0,809.

Shake 1 volume of Spirit of Ether with 1 volume of potassium acetate solution; half a volume of ethereal liquid should be separated.

When sprinkled over a filter paper and allowed to volatilize spontaneously, no foreigen odor should be perceptible.

Preserve it in well-stoppered bottles, in a cool place.

SPIRITUS AETHERIS NITROSI.

Spirit of Nitrous Ether. *Sweet Spirit of Nitre.*

Nitric Acid	3 *pts.*
Alcohol	12 *pts.*

Carefully pour nitric acid upon 5 parts of alcohol, so as to form 2 layers, and allow the mixture to stand for 2 days without agitation. Distil the mixture on a water bath, and collect the distillate in a receiver which contains 5 parts of alcohol. Stop the distillation as soon as a yellow vapor is noticed.

Neutralize the distillate with magnesium oxide, and, after 24 hours, distil once more on a water bath, with a gentle heat at first, into a receiver which contains 2 parts of alcohol, until the product weighs 8 parts.

A colorless to pale yellow, clear, volatile liquid, having an agreeable, ethereal odor and a sweetish, burning taste; clearly miscible in all proportions with water, showing a neutral or slightly acid reaction. Specific gravity: 0,84–0,85.

Spirit of Nitrous Ether should completely volatilize on a water bath without leaving any residue.

Introduce 5 ccm of Spirit of Nitrous Ether into a test tube of about 2 cm in diameter, add 15 ccm of ferrous sulphate solution and then 5 ccm of diluted sulphuric acid, and shake the well-stoppered tube; a blackish-brown color should develop.

A mixture of 10 ccm of Spirit of Nitrous Ether and 0,2 ccm of normal potassium hydroxide volumetric solution should not be acid.

Preserve it in well-stoppered bottles.

SPIRITUS AMMONIAE AROMATICUS.

Aromatic Spirit of Ammonia.

Ammonium Carbonate	40 *pts.*
Ammonia Water	100 *pts.*
Oil of Citron	8 *pts.*
Oil of Cloves	1 *pt.*
Oil of Lavender	1 *pt.*
Alcohol	650 *pts.*
Distilled Water	200 *pts.*

At first mix ammonia water with distilled water, and in the resulting mixture dissolve ammonium carbonate. Dissolve the volatile oils in alcohol. Mix these solutions, and filter.

A clear, slightly yellow or yellow liquid, having an aromatic and ammoniacal odor, and containing about 2 per cent. of pure ammonia ($NH_3=17,03$).

Preserve it in glass-stoppered bottles.

SPIRITUS AMMONIAE FOENICULATUS.

Foeniculated Spirit of Ammonia.

Oil of Fennel	3 *pts.*
Alcohol	80 *pts.*
Ammonia Water	17 *pts.*

Dissolve the oil in alcohol, and mix ammonia water with the solution.

A clear, slightly yellow or yellow liquid, containing about 1,7 per cent. of pure ammonia ($NH_3=17,03$).

Preserve it in glass-stoppered bottles.

SPIRITUS AROMATICUS.

Aromatic Spirit.

Cloves	15 *pts.*
Cassia Bark	15 *pts.*
Myristica	30 *pts.*
Cardamom	30 *pts.*
Alcohol	800 *pts*
Oil of Citron	1 *pt.*
Oil of Peppermint	2 *pts.*
Common Water	1200 *pts.*

Crush cloves, cassia bark, myristica and cardamom, introduce the mixture into a distillation apparatus, then pour alcohol, oil of citron, oil of peppermint and common water, and distil until about 1000 parts are obtained.

A clear liquid having aromatic odor and taste.

Preserve it in well-stoppered bottles.

SPIRITUS CAMPHORATUS.

Spirit of Camphor. *Tincture of Camphor.*

Purified Camphor	1 *pt.*
Alcohol	7 *pts.*
Distilled Water	2 *pts.*

Dissolve purified camphor in alcohol, and then add distilled water.

A clear, colorless liquid. Specific gravity : 0,885–0,889.

Gradually add water to 10 g of Spirit of Camphor at ordinary temperature ; 4,6–5,3 ccm of water should be required to produce a permanent precipitate of camphor.

Preserve it in well-stoppered bottles.

SPIRITUS CHLOROFORMII.

Spirit of Chloroform.

Chloroform	1 *pt.*
Alcohol	19 *pts.*

Mix them.

A clear, colorless liquid. Specific gravity : about 0,857.

Preserve it in well-stoppered bottles.

SPIRITUS CINNAMOMI.

Spirit of Cassia.

Oil of Cinnamon	1 *pt.*
Alcohol	49 *pts.*

Mix them.

A clear liquid.

Preserve it in well-stoppered bottles.

SPIRITUS CITRI.

Spirit of Citron.

Oil of Citron	1 *pt.*
Alcohol	9 *pts.*

Mix them.

A clear, colorless liquid.

Preserve it in well-stoppered bottles.

SPIRITUS DILUTUS.

Diluted Alcohol.

Alcohol	7 *pts.*
Distilled Water	3 *pts.*

Mix them.

A clear, colorless liquid, containing 60–61 per cent. of pure ethyl alcohol ($C_2H_6O = 46,06$). Specific gravity: 0,896–0,893.

Diluted Alcohol should conform to the tests given under *Spiritus.*

Preserve it in well-stoppered bottles.

SPIRITUS FOENICULI.

Spirit of Fennel.

Oil of Fennel	1 *pt.*
Alcohol	19 *pts.*

Mix them.

A clear, colorless liquid.

Preserve it in well-stoppered bottles.

SPIRITUS LAVANDULAE.

Spirit of Lavender.

Oil of Lavender	3 *pts.*
Alcohol	97 *pts.*

Mix them.

A clear, colorless liquid.

Preserve it in well-stoppered bottles.

SPIRITUS MENTHAE.

Spirit of Peppermint.

Oil of Peppermint	1 *pt.*
Alcohol	9 *pts.*

Mix them.

A clear, colorless liquid.

Preserve it in well-stoppered bottles.

SPIRITUS ROSMARINI.

Spirit of Rosemary.

Oil of Rosemary	1 *pt.*
Alcohol	9 *pts.*

Mix them.

A clear, almost colorless liquid. Specific gravity : **0,838–0,840.**

Preserve it in well-stoppered bottles.

SPIRITUS SAPONATUS.

Spirit of Soap.

Olive Oil	6 *pts.*
Solution of Potassium Hydroxide	7 *pts.*
Alcohol	30 *pts.*
Distilled Water	17 *pts.*

Introduce olive oil, solution of potassium hydroxide and 8 parts of alcohol into a flask, and frequently shake the stoppered flask until a transparent soap glue is obtained, a portion of which dissolves clearly in water or alcohol. Add 22 parts of alcohol and distilled water, and filter.

A clear, yellow liquid, showing an alkaline reaction. Specific gravity : 0,925–0,935.

On shaking with water, Spirit of Soap should foam considerably.

SPIRITUS SINAPIS.

Spirit of Mustard.

Volatile Oil of Mustard	1 *pt.*
Alcohol	49 *pts.*

Mix them.

A clear, colorless liquid, having the odor of volatile oil of mustard. Specific gravity : 0,833–0,837.

Introduce 5 ccm of Spirit of Mustard into a 100 ccm flask, add 30 ccm of tenth-normal silver nitrate volumetric solution and 5 ccm of ammonia water, and heat for 1 hour in a water bath under a reflux condenser. Then allow the mixture to cool, dilute it with water to 100 ccm mark, and filter. Add to 50 ccm of the clear filtrate 6 ccm of nitric acid and 1 ccm of ammonium ferric sulphate solution, and titrate it with tenth-normal ammonium sulphocyanate volumetric solution ;

not more than 7,3 ccm of the latter should be required to produce a red color.

Preserve it in well-stoppered bottles.

STIBIO-KALIUM TARTARICUM.

Tartar Emetic.

$2KSbC_4H_4O_7 + H_2O = 664{,}72$

Fine, transparent crystals, or a white, crystalline powder; gradually efflorescent in the air; soluble in 17 parts of water, and in 3 parts of boiling water, the solution showing a slightly acid reaction, but almost insoluble in alcohol.

The salt contains not less than 99,7 per cent. of pure tartar emetic.

When heated strongly, it emits an odor resembling burning sugar, and leaves an alkaline residue.

An aqueous solution of the salt produces, with lime water, a white precipitate easily soluble in acetic acid. The same solution, acidified with hydrochloric acid, produces, with hydrogen sulphide water, an orange-red precipitate.

A mixture of 1 g of the powdered salt and 3 ccm of stannous chloride solution should not become dark within 1 hour.

An aqueous solution (1 : 100) of the salt, mixed with a small quantity of tartaric acid, should not be rendered turbid by barium nitrate solution, silver nitrate solution, or by ammonium oxalate solution, nor should it assume any blue color with potassium ferrocyanide solution.

Dissolve 0,2 g each of the salt and tartaric acid in 100 ccm of water, and add 2 g of sodium bicarbonate and 1–2 drops of starch solution; the mixture should require 12 ccm of tenth-normal iodine volumetric solution to produce a permanent blue color.

Preserve it with care.

Maximum dose at a time: 0,1 g.
Maximum dose for a day: 0,3 g.

STIBIUM SULFURATUM AURANTIACUM.

Antimony Pentasulphide.

$Sb_2S_5 = 400,7$

A fine, reddish-brown powder, almost odorless and tasteless; nearly insoluble in water, or in alcohol.

When heated in a glass tube, it sublimates sulphur and leaves a black substance.

0,1 g of Antimony Pentasulphide should be almost entirely dissolved by warming with 20 ccm of ammonia water.

Add 1 ccm of concentrated nitric acid to 0,1 g of Antimony Pentasulphide, evaporate it to dryness, treat the residue with 4 ccm of hydrochloric acid, and filter; the filtrate, when mixed with twice its volume of stannous chloride solution, should not become dark within 1 hour.

Shake 1 g of Antimony Pentasulphide with 20 ccm of water, and filter; the filtrate should be neutral to litmus. The same filtrate should neither be colored brown, nor produce any more than a slight turbidity by the addition of silver nitrate solution; the same should not become immediately turbid with barium nitrate solution.

Shake 1 g of Antimony Pentasulphide with 10 ccm of tartaric acid solution (1 : 20), and filter; the filtrate, to which hydrochloric acid has been added, should produce no more than a faint turbidity with hydrogen sulphide gas.

Preserve it protected from light.

STRYCHNINUM NITRICUM.

Strychnine Nitrate.

$C_{21}H_{22}N_2O_2.HNO_3 = 397,32$

Colorless needles, having a bitter taste; soluble in 90 parts of water, showing a neutral reaction, also in 3 parts of boiling water, and in 30 parts of boiling alcohol, but nearly insoluble in ether, chloroform, or in carbon disulphide.

Add ferrous sulphate solution to an aqueous solution of the salt, and add sulphuric acid ; a blackish-brown color develops. The same solution produces, with potassium bichromate solution, a reddish-yellow, crystalline precipitate, which, when filtered off and washed with water, assumes a transient bluish-violet color with sulphuric acid.

0,05 g of the salt should dissolve nearly colorlessly in 1 ccm of sulphuric acid, previously cooled to 0°.

Strychnine Nitrate should not be colored red when triturated with nitric acid.

A cold, saturated, aqueous solution of the salt, acidulated with diluted nitric acid, should not be affected by silver nitrate solution, or by barium nitrate solution.

When dried at 100°, the salt should hardly lose its weight.

On incineration, the salt should leave not more than 0,1 per cent. of solid residue.

Preserve it with special care.

Maximum dose at a time : 0,005 g.
Maximum dose for a day : 0,015 g.

STYRAX LIQUIDUS.

Liquid Storax. *Storax.*

A balsam from the inner bark of Liquidambar orientalis *Mill.*, obtained by boiling with water and pressing.

A gray, sticky liquid, having an agreeable odor ; sinking when thrown into water, and leaving a small quantity of colorless oily drops floating on the surface.

Mix 1 part of Liquid Storax with 10 parts of alcohol ; a grayish-brown, turbid liquid results, which, on filtering, gives a clear acid solution. The latter, on evaporation, leaves a brown, semi-fluid substance, which is transparent in thin layers; the residue thus obtained weighs not less than 65 per cent. of Liquid Storax, and is soluble in ether, carbon disulphide, and in benzene, but partially soluble in petroleum benzin.

When extracted completely with boiling alcohol, the insoluble portion, after drying, should be not more than 2,5 per cent.

STYRAX LIQUIDUS DEPURATUS.

Purified Liquid Storax.

Warm liquid storax on a water bath, and remove the greater part of water. Dissolve the residue in an equal part of alcohol, filter, and evaporate the filtrate to the consistency of a thick extract.

A brown, sticky substance, transparent in thin layers ; clearly soluble in an equal part of alcohol, but becoming turbid on the further addition of alcohol ; also soluble in ether, carbon disulphide, and in benzene, leaving a small quantity of flocculent substances.

On drying at 100°, it should lose not more than 10 per cent. of its weight.

SUCCUS LIQUIRITIAE.

Licorice Juice.

An extract obtained by boiling licorice root with water, expressing and evaporating the decoction thus obtained.

Lustrous, black masses, having a very sweet taste, and with a conchoidal fracture.

When dissolved in water, it should leave not more than 40 per cent. of residue.

When examined under the microscope, no starch grains should be visible.

On incineration, it should leave not more than 8 per cent. of solid residue.

SULFONALUM.

Sulphonal.

$C_7H_{16}O_4S_2 = 228,28$

Colorless, prismatic crystals, or a white, crystalline powder ; odorless and tasteless ; soluble in 500 parts of water, 15 parts of boiling water, 80 parts of alcohol, 2 parts of boiling alcohol, and in 135 parts of ether, showing a neutral reaction. Melting point : 125–126°.

Heat Sulphonal with powdered charcoal in a test tube ; the characteristic odor of mercaptan is developed.

1 part of Sulphonal, dissolved in 50 parts of boiling water, should develop no odor ; the solution, filtered after cooling, should not be affected by barium nitrate solution, or by silver nitrate solution. 10 ccm of the filtrate should not immediately decolorize 1 drop of potassium permanganate solution.

On incineration, Sulphonal should leave not more than 0,1 per cent. of solid residue.

Preserve it with care.

Maximum dose at a time : 1 g.
Maximum dose for a day : 3 g.

SULFUR DEPURATUM.

Purified Sulphur.

S=32,06

Sublimed Sulphur	10 *pts.*
Ammonia Water	1 *pt.*
Distilled Water	17 *pts.*

Triturate sublimed sulphur with a mixture of ammonia water and 7 parts of distilled water, and allow the mixture to stand for 24 hours with occasional agitation. Then add 10 parts of distilled water, filter, and thoroughly wash the sulphur with distilled water. Dry it at a temperature not exceeding 30°, and pass it through a sieve.

A fine, dry, yellow powder; odorless and tasteless. When heated, it fuses; when ignited, it burns with a blue flame, and emits an odor of sulphur dioxide.

Purified Sulphur should dissolve almost entirely on boiling with 10 parts of sodium hydroxide solution, and, when moistened with water, should be neutral to litmus papers.

Add 20 parts of ammonia water to 1 part of Purified Sulphur, allow the mixture to stand at 35–40° for 1 hour with frequent shaking, and then filter; the filtrate should not become yellow when acidulated with hydrochloric acid, even on the further addition of hydrogen sulphide water.

On incineration, it should leave not more than 0,25 per cent. of solid residue.

SULFUR PRAECIPITATUM.

Precipitated Sulphur.

S = 32,06

A very fine, amorphous powder, of a yellowish-white color. It melts when heated, and, on ignition, burns with a blue flame, simultaneously emitting an odor of sulphur dioxide.

It is insoluble in water, or in alcohol, readily soluble in carbon disulphide, and soluble in boiling sodium hydroxide solution.

Shake 1 g of Precipitated Sulphur with 10 ccm of water at 40–50°, and filter; the filtrate should neither be affected by lead acetate solution, nor produce any more than an opalescence with silver nitrate solution.

When moistened with water, Precipitated Sulphur should not change the color of litmus papers. Add to 1 part of Precipitated Sulphur 20 parts of ammonia water, set aside for 1 hour with frequent agitation at 35–40°, and filter; the filtrate, when acidulated with hydrochloric acid, should not become yellow, even on the further addition of hydrogen sulphide water.

On incineration, Precipitated Sulphur should leave not more than 0,5 per cent. of solid residue.

SULFUR SUBLIMATUM.

Sublimed Sulphur.

A fine, yellow powder, which melts when heated and burns, when ignited, with a blue flame, emitting an odor of sulphur dioxide.

On boiling with sodium hydroxide solution, Sublimed Sulphur should almost completely dissolve in it.

On incineration, Sublimed Sulphur should leave not more than 0,25 per cent. of solid residue.

SUPPOSITORIA.

Suppositories.

Suppositories are the preparations, usually cylindrical, conical or spherical in shape.

In order to prepare suppositories, mix medicinal substances, directly or as solution or after triturating with appropriate liquids, with vehicles.

Unless otherwise prescribed, use oil of theobroma as a vehicle.

Poisonous, powerful or solid medicines, unless clearly stated in the prescription, should not be filled in their original form in hollow suppositories.

The rectal suppositories are generally 3-4 cm in length, and 2-3 g in weight, and the vaginal suppositories weigh generally 4-6 g.

SUPPOSITORIA GLYCERINI.

Suppositories of Glycerin.

Glycerin	60 *pts.*
Sodium Carbonate	3 *pts.*
Stearic Acid	5 *pts.*

Dissolve sodium carbonate in glycerin, add stearic acid, melt the mixture by carefully heating until carbon dioxide ceases to evolve, and then make it into suppositories.

Each suppository contains about 3 g of glycerin.

SUPPOSITORIA OPII.

Suppositories of Opium.

Opium	0,3 *pts.*
Oil of Theobroma	*a sufficient quantity.*

Intimately mix opium with a part of oil of theobroma, to the mixture add the remaining oil in melted condition, and make it into suppositories.

Each suppository contains about 0,03 g of opium.

SUPPOSITORIA SCOPOLIAE.

Suppositories of Scopolia.

Extract of Scopolia	0,5 *pts.*
Oil of Theobroma	*a sufficient quantity.*

Prepare according to the method described under the article of *Suppositoria Opii.*

Each suppository contains about 0,05 g of extract of scopolia.

TALCUM.

Talc.

Finely crushed magnesium silicate in form of a white or whitish powder, unctuous to the touch when rubbed between fingers; insoluble in water, or in alcohol.

TALCUM DEPURATUM.

Purified Talc.

Talc	20 *pts.*
Hydrochloric Acid	3 *pts.*
Water	200 *pts.*

Mix talc, 2 parts of hydrochloric acid and 100 parts of boiling water, and boil the mixture for 15 minutes with frequent stirring, and allow it to stand for 15 minutes. Decant the supernatant liquid, mix the residue with 100 parts of common water and 1 part of hydrochloric acid, and allow the mixture to stand for 15 minutes with frequent stirring.

Decant the supernatant liquid, wash the residue with distilled water, until the washing, after filtering, fails to show any change upon the addition of silver nitrate solution, and then dry it.

A fine powder, of a white or nearly white color; odorless and tasteless.

Boil 5 g of Purified Talc with 50 ccm of water for 5 minutes, and filter; the filtrate should show a neutral reaction.

10 ccm of the filtrate, when evaporated and dried at 100°, should leave no weighable solid residue, nor should 10 ccm of the same, when acidulated with hydrochloric acid, yield a blue color upon the addition of 0,5 ccm of potassium ferrocyanide solution.

When heated strongly, Purified Talc should lose not more than 5 per cent. of its weight.

TANNINUM ACETYLICUM.

Acetyl Tannic Acid.

A yellowish-white or grayish-white powder, almost odorless and tasteless ; difficultly soluble in water, and in ether, readily soluble in alcohol, sodium carbonate solution, and in borax solution.

Acetyl Tannic Acid, when boiled with ammonia water for 5 minutes and diluted with water, yields a bluish-black precipitate with ferric chloride solution. When warmed with alcohol and sulphuric acid, it evolves the odor of acetic ether.

Shake 0,5 g of Acetyl Tannic Acid with 50 ccm of water, and filter ; the clear filtrate may produce a slightly greenish color, but should produce no blue color, on the addition of 1 drop of ferric chloride solution.

Shake 1 part of Acetyl Tannic Acid with 20 parts of water, acidulated with nitric acid, and filter ; the filtrate should not be affected by silver nitrate solution, barium nitrate solution, or by hydrogen sulphide water.

On incineration, Acetyl Tannic Acid should leave not more than 0,1 per cent. of solid residue.

Preserve it in completely filled, well-stoppered bottles.

TELA ACIDI BORICI.

Boracic Gauze.

Boric Acid	12 *pts.*
Glycerin	6 *pts.*
Boiling Distilled Water	116 *pts.*
Purified Gauze	100 *pts.*

Dissolve boric acid and glycerin in boiling distilled water, soak the gauze in the solution, press, and dry the gauze.

Boracic Gauze contains about 10 per cent. of boric acid.

Preserve it well-closed.

TELA DEPURATA.

Purified Gauze.

A white, clean cloth wooven with pure cotton thread.

Purified Gauze should have usually the breadth of about 30 cm, and the weight of at least 3 g for 918 qcm each, and should contain at least 24 threads in 1 qcm.

Purified Gauze should acquire no blue color, when iodine solution is dropped upon it.

In other respects, Purified Gauze should conform to the tests described under *Gossypium depuratum*.

TELA HYDRARGYRI BICHLORATI.

Sublimate Gauze.

Mercuric Chloride	2 *pts.*
Potassium Chloride	2 *pts.*
Distilled water	1300 *pts.*
Purified Gauze	1000 *pts.*

Dissolve mercuric chloride and potassium chloride in distilled water, faintly color the solution with scarlet or fuchsin S, soak the gauze in it, press, and dry the gauze at ordinary temperature.

Sublimate Gauze contains about 0,2 per cent. of mercuric chloride.

Preserve it well-closed and protected from light.

TELA JODOFORMIATA.

Iodoform Gauze.

Iodoform	55 *pts.*
Liquid Paraffin	3 *pts.*
Alcohol	400 *pts.*
Ether	1000 *pts.*
Purified Gauze	1000 *pts.*

Dissolve iodoform in a mixture of liquid paraffin, alcohol and ether, soak the gauze in the resulting solution, and, when it has been colored uniformly yellow, dry it at ordinary temperature in a dark place.

Iodoform Gauze contains about 5 per cent. of iodoform.

Preserve it well-closed and protected from light.

TELA SALICYLATA.

Salicylic Gauze.

Salicylic Acid	58 *pts.*
Glycerin	100 *pts.*
Alcohol	550 *pts.*
Distilled Water	550 *pts.*
Purified Gauze	1000 *pts.*

Dissolve salicylic acid in a mixture of glycerin, alcohol and distilled water, soak the gauze in the resulting solution, press, and dry it at ordinary temperature.

Salicylic Gauze contains about 5 per cent. of salicylic acid.

Preserve it well-closed.

TEREBINTHINA.

Turpentine.

A balsam obtained from several species of Pinus.

A yellowish or pale brown, viscid liquid, having a characteristic odor and a bitter taste, and containing 70–85 per cent. of resin and 15–30 per cent. of oil of turpentine.

Turpentine becomes opaque from a crystalline deposit, but, when heated on a water bath, produces a yellowish-brown, nearly clear liquid, which becomes turbid again on cooling.

To 1 part of Turpentine add 5 parts of alcohol ; a clear solution is produced, which reddens a moistened blue litmus paper.

TERPINUM HYDRATUM.

Terpin Hydrate.

$C_{10}H_{20}O_2 + H_2O = 190,23$

Colorless, lustrous prisms ; nearly odorless, and having a slightly aromatic, somewhat bitter taste ; it sublimes in fine needles on heating. It melts at 116–117°, then loses its water of crystallization, and the anhydrous substance thus produced melts again at 102–105°. It burns with a luminous flame when heated in the air.

Terpin Hydrate is soluble in about 250 parts of water, 32 parts of boiling water, 10 parts of alcohol, 2 parts of boiling alcohol, 100 parts of ether, 200 parts of chloroform, and in 1 part of boiling glacial acetic acid.

Terpin Hydrate dissolves with an orange-yellow color in sulphuric acid. A boiling, aqueous solution of Terpine Hydrate becomes turbid, and evolves a strongly aromatic odor, upon the addition of 2–3 drops of sulphuric acid.

Terpin Hydrate should not have the odor resembling turpentine, and its boiling, aqueous solution should not change the color of litmus papers.

On incineration, Terpin Hydrate should leave not more than 0,1 per cent. of solid residue.

THEOBROMINO-NATRIUM SALICYLICUM.

Theobromine Sodio-Salicylate.

Theobromine	47,3 *pts.*
Sodium Salicylate	42,1 *pts.*
Sodium Hydroxide	10,6 *pts.*
Distilled Water	*a sufficient quantity.*

Dissolve theobromine, sodium salicylate and sodium hydroxide in distilled water, and evaporate the solution to dryness.

A white, odorless powder, having a sweet, saline, somewhat alkaline taste ; soluble in an equal part of water, showing an alkaline reaction.

An aqueous solution (1 : 5) of Theobromine Sodio-Salicylate is almost colorless, and, when acidified with acetic acid, acquires a violet color on the addition of ferric chloride solution.

The same aqueous solution, on the addition of hydrochloric acid, deposits salicylic acid, and, after a short time, a white precipitate of theobromine. The resulting precipitate is soluble in sodium hydroxide solution, but not completely soluble in ammonia water.

Shake a clear solution, prepared by dissolving 1 g of Theobromine Sodio-Salicylate in 10 ccm of sodium hydroxide solution, with an equal volume of chloroform, separate the chloroform solution, and evaporate it on a water bath ; the residue, when dried at 100°, should weigh not more than 0,005 g.

0,1 g of Theobromine Sodio-Salicylate should dissolve without effervescence in 1 ccm of sulphuric acid, and the solution should be colorless or nearly colorless.

Acidulate an aqueous solution (1 : 10) of Theobromine Sodio-Salicylate with diluted nitric acid, and filter; the clear filtrate should yield no more than a slight turbidity with barium nitrate solution, or with silver nitrate solution.

Dissolve 2 g of Theobromine Sodio-Salicylate in 10 ccm of water by warming gently in a porcelain dish, add to the solution 5 ccm or more of normal hydrochloric acid volumetric solution, sufficient to make it slightly acid, then 1 drop of ammonia water, previously diluted with 10 times its weight of water, and allow the slightly alkaline mixture to stand for 3 hours at 15–20° with stirring.

Collect the precipitate on a filter paper of about 8 cm in diameter, previously dried at 100° and weighed, wash it with 2 successive portions of 10 ccm each of water, and dry it at 100°; the precipitate should weigh at least 0,8 g.

Dissolve 0,1 g of the precipitate in 10 ccm of chlorine water, and quickly evaporate the solution on a water bath; the yellowish-red residue should acquire a beautiful violet-red color on the addition of a small quantity of ammonia water.

When dried at 100° for 1 hour, Theobromine Sodio-Salicylate should lose not more than 10 per cent. of its weight.

Preserve it with care, in well-stoppered bottles.

Maximum dose at a time: 1 g.
Maximum dose for a day: 3 g.

THEOPHYLLINUM.

Theophylline.

$C_7H_8N_4O_2 + H_2O = 198,16$

Colorless, odorless, fine needles; sparingly soluble in water, and in alcohol, readily soluble in boiling water, and in boiling alcohol, showing a neutral reaction. Melting point: 264–265°.

Theophylline dissolves easily in a mixture of 1 part of ammonia water and 9 parts of water without coloration, and the solution produces, with silver nitrate solution, a gelatinous precipitate, which is soluble in an excess of nitric acid.

Dissolve 0,1 g of Theophylline in 10 ccm of chlorine water, and evaporate the solution on a water bath ; the yellowish-red residue acquires a violet-red color on the addition of a small quantity of ammonia water.

A cold, saturated, aqueous solution of Theophyline should not be affected by bromine water, or by iodine solution. The same solution should produce, with tannic acid solution, a gelatinous precipitate, which is soluble in an excess of the reagent.

0,1 g of Theophylline should dissolve without coloration in 1 ccm of sulphuric or nitric acid.

When dried at 100°, Theophylline should lose not more than 9,1 per cent. of its weight.

On incineration, Theophylline should burn without charring, and leave not more than 0,1 per cent. of solid residue.

Maximum dose at a time : 0,5 g.
Maximum dose for a day : 1,5 g.

THYMOLUM.

Thymol.

$C_{10}H_{14}O = 150,16$

Large, colorless, translucent crystals, having a characteristic odor and a slightly pungent taste. Melting point : 50–51°. It volatilizes completely on a water bath.

Thymol sinks in water, but, on heating, melts into a clear, colorless, oily liquid, which floats upon the surface of water. Slightly soluble in water, readily soluble in alcohol, ether, chloroform, and in 2 parts of sodium hydroxide solution. It liquefies when triturated with an equal part of camphor, menthol or chloral hydrate.

Dissolve 1 part of Thymol in 4 parts of sulphuric acid, and gently warm the solution; a blood-red color is produced. Dissolve a piece of its crystals in 1 ccm of glacial acetic acid, and add 6 drops of sulphuric acid and 1 drop of nitric acid; the solution assumes a bluish-green color.

A saturated, aqueous solution of Thymol should show a neutral reaction. The same solution may produce, with bromine water, a milky opalescence, but should produce no crystalline precipitate. The same solution should produce no violet color with ferric chloride solution.

Dissolve 1 g of Thymol in 5 ccm of sodium hydroxide solution; a clear, colorless solution should be formed, which shows no more than a slight coloration.

When heated on a water bath, Thymol should leave not more than 0,1 per cent. of solid residue.

TINCTURAE.

Tinctures.

The tinctures are usually prepared by extracting medicinal substances with alcohol, diluted alcohol, or with water.

Unless otherwise prescribed, introduce the medicinal substances, finely cut or coarsely powdered, into a proper vessel, pour the menstrum, tightly close the vessel, and allow to macerate, with frequent shaking, for 7 days in a shady place. Strain, and, if necessary, express; set aside the strained liquids in a shady place, allow the precipitate to settle, and filter, preventing the evaporation of the liquid.

Tinctures should be kept in a cool shady place.

TINCTURA ACONITI NAPELLI.

Tincture of Aconite.

Prepare by taking.

Aconite Root, *in coarse powder*	1 *pt.*
Diluted Alcohol	10 *pts.*

A yellowish-brown liquid, having a faintly bitter taste, follwed by a pungent and burning after-taste.

Preserve it with care.

Maximum dose at a time : 0,5 g.
Maximum dose for a day : 1,5 g.

TINCTURA ALOËS COMPOSITA.

Compound Tincture of Aloes.

Prepare by taking.

Aloes, *in coarse powder*	6 *pts.*
Rhubarb, *in coarse powder*	1 *pt.*
Ryutan Root, *in coarse powder*	1 *pt.*
Zedoary Rhizome, *in coarse powder*	1 *pt.*
Saffron	1 *pt.*
Diluted Alcohol	200 *pts.*

A reddish-brown, aromatic liquid, having a very bitter taste.

1 ccm of the tincture colors 500 ccm of water distinctly yellow.

O TINCTURA AMARA.

Bitter Tincture.

Prepare by taking.

Bitter Orange Peel, *in coarse powder*	5 *pts.*

Ryutan Root, *in coarse powder*	5 *pts*
Cardamom, *in coarse powder*	2 *pts*
Diluted Alcohol	100 *pts.*

A yellowish-brown, aromatic liquid, having a bitter taste

TINCTURA AROMATICA.

Aromatic Tincture.

Cloves, *in coarse powder*	2 *pts.*
Cassia Bark, *in coarse powder*	10 *pts.*
Cardamom, *in coarse powder*	2 *pts.*
Ginger, *in coarse powder*	5 *pts.*
Diluted Alcohol	100 *pts.*
Spirit of Citron	5 *pts.*

Macerate the drugs with diluted alcohol for 7 days, express, filter, and add spirit of citron to the filtrate.

A reddish-brown liquid, having aromatic odor and taste.

TINCTURA AROMATICA ACIDA.

Acid Aromatic Tincture. *Aromatic Sulphuric Acid.*

Sulphuric Acid	2 *pts.*
Diluted Alcohol	18 *pts.*
Cassia Bark, *in coarse powder*	1 *pt.*
Ginger, *in coarse powder*	1 *pt.*

Gradually add sulphuric acid, with stirring, to diluted alcohol, and add the powders to the resulting mixture.

A brownish-red, aromatic liquid, having a strongly acid taste.

Preserve it in glass-stoppered bottles.

TINCTURA ASAE FOETIDAE.

Tincture of Asafetida.

Prepare by taking.

Asafetida, *in coarse powder*	1 *pt.*
Alcohol	5 *pts.*

A reddish-yellow to yellowish, brownish-red liquid.

○ TINCTURA AURANTII CORTICIS.

Tincture of Bitter Orange Peel.

Prepare by taking.

Bitter Orange Peel, *in coarse powder*	1 *pt.*
Diluted Alcohol	5 *pts.*

A brownish liquid.

TINCTURA BENZOËS.

Tincture of Benzoin.

Prepare by taking.

Benzoin, *in coarse powder*	1 *pt.*
Alcohol	5 *pts.*

A yellowish, reddish-brown liquid, which, on adding water, becomes milky and shows an acid reaction.

TINCTURA CANNABIS INDICAE.

Tincture of Indian Hemp.

Extract of Indian Hemp	1 *pt.*
Alcohol	20 *pts.*

Dissolve extract of indian hemp in alcohol, and filter.

A dark green liquid, having a characteristic odor and a somewhat bitter taste.

TINCTURA CANTHARIDUM.

Tincture of Cantharides.

Prepare by taking.

Cantharides, *in coarse powder*	1 *pt.*
Alcohol	10 *pts.*

A yellowish-brown liquid, which, when mixed with an equal volume of water, produces a milky turbidity.

Preserve it with care.

Maximum dose at a time : 0,2 g.
Maximum dose for a day : 0,6 g.

TINCTURA CAPSICI.

Tincture of Capsicum.

Prepare by taking.

Capsicum, *medium cut*	1 *pt.*
Alcohol	10 *pts.*

A reddish-yellow liquid, having a sharp, burning taste.

TINCTURA CASCARILLAE.

Tincture of Cascarilla.

Prepare by taking.

Cascarilla Bark, *in coarse powder*	1 *pt.*
Diluted Alcohol	5 *pts.*

A reddish-brown liquid, having a very bitter taste.

TINCTURA CATECHU.

Tincture of Catechu.

Prepare by taking.

Catechu, *in coarse powder*	1 *pt.*
Diluted Alcohol	5 *pts.*

A dark brown liquid, having an astringent taste.

Add 5 drops of the tincure to 10 ccm of water; the mixture is colored greenish-black by 5 drops of ferric chloride solution.

TINCTURA CHINAE.

Tincture of Cinchona.

Cinchona Bark, *in coarse powder*	1 *pt.*
Diluted Alcohol	5 *pts.*

Macerate the drug with diluted alcohol for 10 days, press, and filter.

A reddish-brown liquid, having a strongly bitter taste.

Evaporate 50 g of Tincture of Cinchona to about 15 ccm, then add 3 ccm of alcohol and 1 ccm of diluted hydrochloric acid, and shake the solution with 80 ccm of ether and 20 ccm of chloroform. Add 2 ccm of sodium hydroxide solution, frequently and strongly shake for 10 minutes, then add 3 g of tragacanth powder, and, after violent shaking, allow the mixture to stand for 5 minutes.

Quickly filter the clear chloroform-ether solution through purified cotton, distill off the chloroform from 80 ccm of the filtrate, and dissolve the residue, by gentle heat, in 10 ccm of absolute alcohol. Add 10 ccm of water and 3 drops of haematoxylin solution, and titrate it with tenth-normal hydrochloric acid volumetric solution with light shaking, until a reddish-brown color is produced.

Then add 50 ccm of water, and continue the titration; at least 11 ccm of the tenth-normal volumetric solution should be required in order to color the solution yellow.

2 ccm of the neutralized solution, when mixed with 8 ccm of water and 1 ccm of chlorine water, should develop a beautiful green color on the addition of ammonia water.

TINCTURA CHINAE COMPOSITA.

Compound Tincture of Cinchona.

Prepare by taking.

Cinchona Bark, *in coarse powder*	6 *pts.*
Bitter Orange Peel, *in coarse powder*	2 *pts.*
Ryutan Root, *in coarse powder*	2 *pts.*
Cassia Bark, *in coarse powder*	1 *pt.*
Diluted Alcohol	50 *pts.*

A reddish-brown liquid, having an aromatic odor and a very bitter taste.

TINCTURA CHLOROFORMII ET MORPHINI COMPOSITA.

Compound Tincture of Chloroform and Morphine.

Morphine Hydrochloride	10 *pts.*
Diluted Hydrocyanic Acid	50 *pts.*
Chloroform	112 *pts.*
Tincture of Indian Hemp	84 *pts.*
Tincture of Capsicum	10,5 *pts.*
Oil of Peppermint	1,4 *pts.*
Glycerin	311 *pts.*
Alcohol	425 *pts.*

Dissolve morphine hydrochloride in diluted hydrocyanic acid, and with the solution mix chloroform, tincture of indian hemp, tincture of capsicum, oil of pepermint, glycerin and alcohol.

A greenish, yellowish-brown liquid.

Preserve it with care.

TINCTURA CINNAMOMI.

Tincture of Cassia.

Prepare by taking.

Cassia Bark, *in coarse powder*	1 *pt.*
Diluted Alcohol	5 *pts.*

A reddish-brown liquid.

TINCTURA COLCHICI.

Tincture of Colchicum.

Colchicum Seed, *in coarse powder*	1 *pt.*
Diluted Alcohol	10 *pts.*

Macerate the seed with diluted alcohol for 10 days, press, and filter.

A yellow liquid.

Evaporate 20 drops of the tincture, to the residue add 5 drops of sulphuric acid, then a small piece of potassium nitrate, and stir ; a bluish-violet color, which disappears immediately, is produced.

Preserve it with care.

Maximum dose at a time : 2 g.
Maximum dose for a day : 6 g.

TINCTURA COLOCYNTHIDIS.

Tincture of Colocynth.

Prepare by taking.

Colocynth, *deprived of seeds and medium cut*	1 *pt.*

Alcohol	10 *pts.*

A yellow liquid, having a very bitter taste.

Add 1–2 drops of sulphuric acid to the residue, obtained by evaporating 5 drops of the tincture; an orange-red color is produced.

Preserve it with care.

Maximum dose at a time: 1 g.
Maximum dose for a day: 3 g.

TINCTURA COLOMBO.

Tincture of Calumba.

Prepare by taking.

Calumba Root, *in coarse powder*	1 *pt.*
Diluted Alcohol	10 *pts.*

A yellowish-brown liquid, having a bitter taste.

TINCTURA CROCI.

Tincture of Saffron.

Prepare by taking.

Saffron, *medium cut*	1 *pt.*
Diluted Alcohol	10 *pts.*

A dark orange-yellow liquid.

1 ccm of a solution, obtained by diluting 1 ccm of the tincture with 20 ccm of water, should color 1000 ccm of water distinctly yellow.

TINCTURA DIGITALIS.

Tincture of Digitalis.

Prepare by taking.

Digitalis Leaves, *in coarse powder*	1 *pt.*
Diluted Alcohol	10 *pts.*

A green to brownish-green liquid, having a bitter taste, and the odor of digitalis leaves.

Mix 10 ccm of the tincture with an equal volume of water, and evaporate on a water bath to about 10 ccm. Add lead subacetate solution until no more precipitation occurs, and then filter it into a separator. Shake it with 10 ccm of chloroform, allow the mixture to stand, and evaporate the clear chloroform solution.

Dissolve the residue in 3 ccm of glacial acetic acid, add 1 drop of diluted ferric chloride solution, and carefully pour sulphuric acid on it, so as to form 2 layers of liquids ; a brownish-red zone at the line of contact, and upon which a bluish-green layer should be formed.

Preserve it with care.

Maximum dose at a time : 1,5 g.
Maximum dose for a day : 5 g.

TINCTURA FERRI AETHEREA.

Ethereal Tincture of Iron.

Solution of Ferric Chloride	1 *pt.*
Ether	2 *pts.*
Alcohol	7 *pts.*

Mix them, transfer the resulting solution to a well-stoppered, colorless glass bottle, and expose it to sunshine until the brownish-yellow color entirely disappears. Then keep the bottle in a shady place, and frequently remove the stopper until the liquid acquires a bright yellow color.

A bright yellow liquid. Specific gravity : 0,85–0,86.

Ethereal Tincture of Iron contains 1 per cent. of pure iron (Fe = 55,84).

When diluted with water, the tincture produces a blue color with potassium ferrocyanide or ferricyanide solution, a dirty green to brown color with ammonia water, and a white precipitate with silver nitrate solution.

Shake 10 ccm of the tincture with an equal volume of potassium acetate solution ; 3–4 ccm of ethereal solution should be separated on standing.

TINCTURA FERRI POMATI.

Tincture of Iron Malate.

Extract of Iron Malate	1 *pt.*
Alcohol	2 *pts.*
Cinnamon Water	7 *pts.*

Dissolve the extract in a mixture of alcohol and cinnamon water, and filter.

A dark brownish-black liquid, having the odor of cassia bark and a mild ferruginous taste.

TINCTURA GALLARUM.

Tincture of Gobaishi (*Japanese Galls*).

Prepare by taking.

Gobaishi, *in coarse powder*	1 *pt.*
Diluted Alcohol	5 *pts.*

A yellowish-brown liquid, clearly miscible with water. Ferric chloride solution, when added to the tincture, produces a bluish-black precipitate.

TINCTURA GENTIANAE COMPOSITA.

Compound Tincture of Gentian.

Prepare by taking.

Gentian Root, *in coarse powder*	10 *pts.*
Bitter Orange Peel, *in coarse powder*	4 *pts.*
Cardamom, *in coarse powder*	1 *pt.*
Alcohol	40 *pts.*
Distilled Water	50 *pts.*

A reddish, yellowish-brown liquid, having an aromatic odor and an aromatic, bitter taste.

TINCTURA GENTIANAE SCABRAE.

Tincture of Ryutan (*Japanese Gentian*).

Prepare by taking.

Ryutan Root, *in coarse powder*	1 *pt.*
Diluted Alcohol	5 *pts.*

A yellowish, reddish-brown liquid, having a very bitter taste.

TINCTURA GUAJACI.

Tincture of Guaiac.

Prepare by taking.

Guaiacum Wood, *in coarse powder*	1 *pt.*
Alcohol	5 *pts.*

A dark reddish-brown liquid, having an aromatic odor.

o TINCTURA IPECACUANHAE.

Tinctúre of Ipecacuanha.

Prepare by taking.

Ipecacuanha Root, *in coarse powder*	1 *pt.*
Diluted Alcohol	10 *pts.*

A reddish, brownish-yellow liquid.

Evaporate 25 g of the tincture with 1 ccm of diluted hydrochloric acid on a water bath to about 8 ccm, after cooling add 10 ccm of water, filter, and wash. Shake the mixture of the filtrate and washing with 50 ccm of ether, add 2 ccm of ammonia water, frequently and vigorously shake for 5 minutes, and set aside for 15 minutes.

Rapidly filter the clear ethereal solution through purified cotton, and distil off the ether from 40 ccm of the filtrate. Dissolve the residue, by warming, in 5 ccm of absolute alcohol, add 10 ccm of water, 30 ccm of ether and 3 drops of haematoxylin solution, and titrate it with tenth-normal hydrochloric acid volumetric solution with light shaking, until a reddish-brown color is produced.

Then add 30 ccm of water, and continue the titration with frequent strong shaking; at least 1,7 ccm of the volumetric solution should be required in order to color the lower aqueous solution yellow.

Preserve it with care.

o TINCTURA JODI.

Tincture of Iodine.

Iodine	10 *pts.*
Potassium Iodide	7 *pts.*
Distilled Water	10 *pts.*
Alcohol	100 *pts.*

Dissolve iodine and potassium iodide in distilled water, and mix the solution with alcohol.

A dark reddish-brown liquid, having the odor of iodine.

Evaporate 10 g of the tincture in a porcelain dish on a water bath, moisten the residue with water, evaporate, and repeat the procedure until it becomes white ; the residue should weigh about 0,55 g.

A mixture of 2 g of Tincture of Iodine and 25 ccm of water should require for complete decolorization 11,4–12,4 ccm of tenth-normal sodium thiosulphate volumetric solution (Indicator : Starch solution).

Preserve it with care, in glass-stoppered bottles.

Maximum dose at a time : 0,2 g.
Maximum dose for a day : 0,6 g.

TINCTURA JODI DILUTA.

Diluted Tincture of Iodine.

Tincture of Iodine	11 *pts.*
Distilled Water	2 *pts.*
Alcohol	20 *pts.*

Add a mixture of distilled water and alcohol to tincture of iodine, and shake.

A reddish-brown liquid, having the odor of iodine.

It should respond to the tests of *Tinctura Jodi.*

A mixture of 6 g of Diluted Tincture of Iodine and 25 ccm of water should require for complete decolorization 11,4–12,4 ccm of tenth-normal sodium thiosulphate volumetric solution (Indicator : Starch solution).

Preserve it in glass-stoppered bottles.

TINCTURA LOBELIAE.

Tincture of Lobelia.

Prepare by taking.

Lobelia, *in coarse powder*	1 *pt.*
Diluted Alcohol	10 *pts.*

A brownish-green liquid.

Preserve it with care.

Maximum dose at a time : 1 g.
Maximum dose for a day : 3 g.

TINCTURA MYRRHAE.

Tincture of Myrrh.

Prepare by taking.

Myrrh, *in fine powder*	1 *pt.*
Alcohol	5 *pts.*

A brownish, reddish-yellow liquid, having an aromatic odor and an aromatic, bitter taste.

O TINCTURA OPII.

Tincture of Opium.

Prepare by taking.

Opium	1 *pt.*
Diluted Alcohol	5 *pts.*
Distilled Water	5 *pts.*

A reddish-brown liquid, having a bitter taste.

10 parts of Tincture of Opium contain the soluble constituents of 1 part of opium.

Evaporate 50 g of the tincture on a water bath nearly to dryness, and treat the residue according to the method described under the article of *Opium* ; it should require 12,2–12,9 ccm of tenth-normal potassium hydroxide volumetric solution. The tests for the neutralized solution should conform to those given under the same article.

Preserve it with care.

Maximum dose at a time : 1,5 g.
Maximum dose for a day : 5 g.

TINCTURA OPII BENZOÏCA.

Benzoated Tincture of Opium.

Prepare by taking.

Opium	1 *pt.*
Benzoic Acid	4 *pts.*
Purified Camphor	2 *pts.*
Oil of Fennel	1 *pt.*
Diluted Alcohol	192 *pts.*

A pale brownish-yellow liquid, having the odor and taste of camphor and of oil of fennel.

200 parts of Benzoated Tincture of Opium contain the soluble constituents of 1 part of opium.

Preserve it with care.

TINCTURA QUASSIAE.

Tincture of Quassia. *Tincture of Kuboku.*

Prepare by taking.

Japanese Quassia Wood, *in coarse powder*	1 *pt.*
Diluted Alcohol	5 *pts.*

A yellow liquid, having a very bitter taste.

TINCTURA RHEI.

Tincture of Rhubarb.

Prepare by taking.

Rhubarb, *coarse cut*	10 *pts.*
Cassia Bark, *in coarse powder*	1 *pt.*
Cardamom, *coarse cut*	1 *pt.*
Alcohol	50 *pts.*
Distilled Water	50 *pts.*

A brownish-yellow liquid, having aromatic odor and taste.

Tincture of Rhubarb develops a reddish-brown color on the addition of sodium hydroxide solution.

TINCTURA RHEI AQUOSA.

Aqueous Tincture of Rhubarb.

Rhubarb, *coarse cut*	10 *pts.*
Potassium Carbonate	1 *pt.*
Borax	1 *pt.*
Boiling Distilled Water	90 *pts.*
Alcohol	9 *pts.*
Cinnamon Water	15 *pts.*

Pour boiling distilled water upon a mixture of rhubarb, potassium carbonate and borax, allow the mixture to stand for 15 minutes, then add alcohol, and, after 1 hour, strain it by a light pressure. Mix 85 parts of the strained liquid with cinnamon water.

A brownish-red liquid, having the odor and taste of rhubarb ; miscible with water without producing any turbidity.

Prepare the tincture when required for use.

TINCTURA SCOPOLIAE.

Tincture of Scopolia.

Prepare by taking.

Scopolia Rhizome, *in medium powder*	1 *pt.*
Diluted Alcohol	5 *pts.*

A yellowish-brown liquid.

Evaporate 60 g of the tincture on a water bath to about 10 ccm, dilute it, after cooling, with water to 20 ccm, and filter.

Shake 15 ccm of the filtrate with 90 ccm of ether, then add 5 ccm of ammonia water, set aside for 15 minutes with frequent strong shaking, and allow the mixture to stand for 15 minutes.

Rapidly filter the clear ethereal solution through purified cotton, distil off the ether from 80 ccm of the filtrate, and dissolve the residue, by gentle warming, in 5 ccm of absolute alcohol. Add 10 ccm of water, 30 ccm of ether and 3 drops of haematoxylin solution, and titrate it with hundredth-normal hydrochloric acid volumetric solution with light shaking, until a reddish-brown color is produced.

Then add 30 ccm of water, and continue the titration with frequent strong shaking; 4,8 ccm of hundredth-normal hydrochloric acid volumetric solution should be required in order to color the lower aqueous solution yellow.

Evaporate 10 ccm of the neutralized solution, add 2–3 drops of fuming nitric acid to the residue, and evaporate again. Dissolve the residue in 1 ccm of absolute alcohol; the solution should develop a violet color with 2–3 drops of alcoholic potassium hydroxide solution.

Preserve it with care.

Maximum dose at a time: 1 g.
Maximum dose for a day: 3 g.

O TINCTURA STROPHANTHI.

Tincture of Strophanthus.

Strophanthus Seed, *in medium powder*	3 *pts.*
Ether	3 *pts.*
Diluted Alcohol	30 *pts.*

Pour 2 parts of ether on the seed, intimately mix, allow the mixture to stand for 24 hours in a tightly-closed vessel, and then press. Pour again 1 part of ether on the residue, and repeat the same procedure.

Dry the residue in the air, and prepare the tincture by pouring diluted alcohol on it.

A clear, brownish-yellow liquid, having a bitter taste.

Evaporate 10 drops of the tincture on a water bath, and warm the residue with 10 drops of diluted sulphuric acid; the resulting clear solution develops a green color with 10 drops of sulphuric acid.

Take 10 drops of the tincture in a porcelain dish, add 1 drop of ferric chloride solution, and then add 1–2 drops of sulphuric acid; a reddish-violet color is produced, which immediately changes to green.

Preserve it with care.

Maximum dose at a time: 0,5 g.
Maximum dose for a day: 1,5 g.

O TINCTURA STRYCHNI.

Tincture of Nux Vomica.

Prepare by taking.

Nux Vomica, *in coarse powder*	1 *pt.*
Diluted Alcohol	10 *pts.*

A yellow liquid, having a very bitter taste.

Add 10 drops of diluted sulphuric acid to 5 drops of Tincture of Nux

Vomica, and evaporate to dryness on a water bath ; it produces a violet-red color, which fades on pouring 2–3 drops of water, but reappears on drying.

Evaporate 50 g of the tincture with 2 ccm of diluted hydrochloric acid on a water bath to about 10 ccm, add, after cooling, 10 ccm of water, filter, and wash. Shake the mixture of the filtrate and washing with 35 ccm of chloroform and 90 ccm of ether, then add 5 ccm of sodium hydroxide solution, frequently and strongly shake for 5 minutes, and set aside for 15 minutes.

Rapidly filter the clear chloroform-ether solution through purified cotton, and distil off the chloroform from 100 ccm of the filtrate.

Dissolve the residue, by gentle warming, in 5 ccm of absolute alcohol, add 10 ccm of water, 30 ccm of ether and 3 drops of haematoxylin solution, and titrate it with tenth-normal hydrochloric acid volumetric solution with light shaking, until a reddish-brown color is produced. Then add 30 ccm of water, and continue the titration with frequent strong shaking ; 2,8 ccm of the volumetric solution should be required in order to color the lower aqueous solution yellow.

Preserve it with care.

Maximum dose at a time : 1 g.
Maximum dose for a day : 2 g.

O TINCTURA VALERIANAE.

Tincture of Kesso (*Japanese Valerian*).

Prepare by taking.

Kesso Rhizome, *in coarse powder*.............. 1 *pt.*
Diluted Alcohol..................................10 *pts.*

A yellowish-brown liquid, having characteristic odor and taste.

TINCTURA VALERIANAE AETHEREA.

Ethereal Tincture of Kesso (*Japanese Valerian*).

Prepare by taking.

Kesso Rhizome, *in coarse powder*	1 *pt.*
Spirit of Ether	5 *pts.*

A yellow liquid, gradually changing into dark color and having characteristic odor and taste.

TINCTURA ZINGIBERIS.

Tincture of Ginger.

Prepare by taking.

Ginger, *in coarse powder*	1 *pt.*
Diluted Alcohol	5 *pts.*

A yellowish-brown liquid, having a pungent taste.

TODAIWO.

Todaiwo.

The dried rhizome of plants belonging to Rheum, growing in China.

Todaiwo is dark-brown, cylindrical, occasionally split longitudinally, and exceeding 1 dm in diameter ; externally covered by corky layer with coarse wrinkles. The cross section is greenish-brown or yellowish-brown in color and powdery. It is very light and brittle, and its tissue spongy.

The powder of Todaiwo contains fragments of reticulate or scalariform tracheae, parenchymatous cells with yellow or brown contents, starch grains, rosette aggregates of oxatate or their fragments, but should not contain sclerenchymatous tissue.

The starch grains are nearly spherical, attaining 0,03 mm in diameter; the rosette aggregates of oxalate are usually 0,075–0,09 mm and rarely 0,15 mm in diameter.

The powder of Todaiwo is colored deep reddish-yellow by sodium hydroxide solution.

On incineration, it should leave not more than 7 per cent. of solid residue.

TRAGACANTHA.

Tragacanth.

A solidified, slimy exudation from the stems of several species of Astragalus, growing in Asia Minor.

Tragacanth is found in form of flakes or ribbon-like or falcate stripes, white, translucent, about 1–3 mm thick, at least 5 mm broad, and lamellated; swelling up when soaked in water.

When 1 part of powdered Tragacanth is mixed with 50 parts of water, there results a turbid, odorless, insipid mucilage, which, when warmed with sodium hydroxide solution on a water bath, acquires a yellow color. When the mucilage is diluted with water and filtered, the residue acquires a dark blue color with iodine water, while the filtrate assumes no coloration.

The powder of Tragacanth should be white, and show, when examined under the microscope, only scattered or grouped starch grains, besides the fragments of mucilage cells.

It should not contain swollen starch grains, dextrine or gummy substances.

On incineration, it should leave not more than 4 per cent. of solid residue.

TROPACOCAÏNUM HYDROCHLORICUM.

Tropacocaine Hydrochloride.

$C_{15}H_{19}NO_2.HCl = 281,71$

Colorless crystals, or a white, crystalline powder ; easily soluble in water, and in alcohol, showing a neutral reaction.

An aqueous solution (1 : 100) of Tropacocaine Hydrochloride produces a brown precipitate with iodine solution, and, when acidified with hydrochloric acid, a pale orange-yellow precipitate with potassium bichromate solution. The same solution, acidified with nitric acid, produces a white precipitate with silver nitrate solution.

Dissolve 0,1 g of Tropacocaine Hydrochloride in 2 ccm of water, and then add 3 ccm of sodium carbonate solution ; a milky turbidity is produced, which disappears on shaking with 10 ccm of ether. The ethereal solution, when evaporated on a water bath, leaves colorless, oily substance, which turns into crystals after a short time in an exsiccator. The crystals melt at about 50°, and their alcoholic solution turns a moistened, red litmus paper blue.

Dissolve 0,1 g of the salt in 1 ccm of water, and shake with 2 drops of nitric acid ; a white, crystalline precipitate is immediately produced.

Dissolve 0,1 g of the salt in 5 ccm of water, and add 3 drops of diluted sulphuric acid ; the solution should acquire, with 1 drop of potassium permanganate solution, a violet color, which hardly fades within 30 minutes, and should produce violet needles after a short time on the further addition of 1 ccm of potassium permanganate solution.

0,1 g of the salt should dissolve without coloration in 1 ccm of sulphuric acid.

On incineration, the salt should leave not more than 0,1 per cent. of solid residue.

Preserve it with care.

Maximum dose at a time : 0,1 g.
Maximum dose for a day : 0,3 g.

TUBERA ACONITI NAPELLI.

Aconite Root.

The dried tuberous root of Aconitum Napellus *L.*, collected at the end of the flowering season.

Aconite Root is of a blackish color, somewhat wrinkled longitudinally, turnip-shaped, more or less pointed below, and marked with numerous root-scars. It weighs about 6 g.

The upper portion of the root bears laterally the scars of the side axis, and the summit bears either a stem-scar or an undeveloped bud, covered with brownish scales.

The cross sections of the root show the endodermis near periphery, and stone cells in its outer boundary; the bark and the wood white, and rich in starch grains; the cambium zone stellate.

It has an acrid taste.

Preserve it with care.

TUBERA JALAPAE.

Jalap.

The tuberous root of Exogonium Purga *Benth.*, divested of rootlets and root-tip, and dried.

Jalap is externally dark brown, and marked with transverse, short lenticels, and scars of rootlets. The fracture appears dark whitish, when the starch is not swollen up, and dark brown and resinous, when dried at a higher temperature.

It shows numerous concentric or irregularly distributed dark rings, owing to the abnormal cambium, which produces internally vascular strands, and externally phloem strands and secretory cells.

Jalap has an acrid taste.

Extract 10 g of powdered Jalap by warming with 100 ccm of alcohol under a reflux condenser for 2 hours, with occasional shaking, replace, after cooling, the alcohol lost by evaporation, and filter. Distil off the alcohol from 50 ccm of the filtrate, wash the residual resin repeatedly with warm water, until the washing is colorless, and dry ; the residue should weigh not less than 9 per cent. This resin should have the properties mentioned under the article of *Resina Jalapae.*

Preserve it with care.

TUBERA SALEP.

Salep.

The tuber or tuberous root of the plants, belonging to Orchis, Anacamptis or Cremastra, collected in the flowering season, immersed in boiling water for a short time, and dried.

Salep is of a gray or yellowish color ; napiform or ovoid, crowned with a bud or its scar at the top ; 0,5–2 cm in diameter and attaining 4 cm in length. Sometimes from light yellowish-brown to dirty brown in color ; irregularly conical or pear-form, occasionally squeezed ; having a scar of the stem at the apex and a scar of the flower-stalk near the apex ; having 3–4 circular lines on the external surface ; attaining 2,5 cm in diameter and 4,5 cm in length.

The section of Salep should be horny and of an uniform lustre.

Salep is chiefly composed of parenchyma, which is penetrated by slender vascular bundles, and many mucilage cells which often contain raphides of oxalate.

When the powder of Salep is treated with iodine solution, previously diluted with 200 times its weight of water, and examined under the microscope, swollen mucilage cells of yellowish-brown color and swollen starch grains of blue color are visible.

1 part of the powdered Salep, when boiled with 100 parts of water, should yield a liquid, which, when cooled, turns to a thick, insipid

mucilage, and should leave not more than a minute quantity of insoluble substance.

On incineration, it should leave not more than 3 per cent. of solid residue.

TUBERCULINUM.

Tuberculin.

A liquid obtained by concentrating the glycerin-bouillon culture of tubercle bacillus to one-tenth of its volume by evaporation, and then filtering. It is sealed in glass bottles, furnished with labels, bearing the name of the factory, the number and the date of examination, and packed so as to be protected from light.

Tuberculin is a clear, brown liquid with a characteristic odor ; easily miscible with water ; containing, besides the active principles, about 40 per cent. of glycerin together with the constituents of bouillon.

0,15–0,25 g of Tuberculin, when injected subcutaneously to a guinea-pig (Cavia cobaya *Schreb.*, Cavia porcellus *L.*) of about 300 g in weight, which has been inoculated, 3 weeks ago, with such an amount of tubercle culture as causes death in 7–9 weeks, should prove fatal within 24 hours. The guinea-pig (Cavia cobaya *Schreb.*, Cavia porcellus *L.*), killed in this way, should show, on dissection, a change characteristic to tuberculin, but no symptoms of other diseases.

2 g of Tuberculin, when injected subcutaneously to a healthy guinea-pig (Cavia cobaya *Schreb.*, Cavia porcellus *L.*), should not prove fatal to the animal.

Tuberculin should prove sterile when tested by the aerobic and anaerobic culture, using bouillon culture or agar-agar culture.

It should be diluted, when wanted for use, with carbolic acid water (1 : 200) or with sterilized water.

Preserve it with care, in a cool dark place, but not over 1 year.

UNGUENTA.

Ointments.

Ointments are the preparations of butter-like consistence for external application, the vehicles of which are generally composed of fats, fixed oils, wool fat, vaseline, solid paraffin, glycerin, waxes, resins, plasters, and analogous substances, or the mixture of any of them.

In order to prepare ointments, melt, unless otherwise prescribed, the difficultly melting substances at first, then add to it the easily melting substances, and finally mix the medicinal substances intimately with the melted mass, which has partially cooled, until the whole forms a homogeneous mass.

Ointments should not be stored in large quantities; those, which decompose easily, should be prepared freshly when required for use.

Ointments, which smell rancid, should be rejected.

UNGUENTUM ACIDI BORICI.

Ointment of Boric Acid.

Boric Acid, *in fine powder*	1 *pt.*
Glycerin	1 *pt.*
Ointment	8 *pts.*

Triturate them together.

The ointment is slightly yellow in color.

UNGUENTUM ARGENTI COLLOIDALIS.

Ointment of Colloidal Silver. *Crede's Ointment.*

Colloidal Silver	2 *pts.*
Anhydrous Wool Fat	9 *pts.*

Yellow Vaseline	9 *pts.*

Triturate them thoroughly.

The ointment is greenish-black in color.

UNGUENTUM BASILICUM.

Basilicon Ointment.

Arachis Oil	9 *pts.*
Yellow Wax	3 *pts.*
Rosin	3 *pts.*
Anhydrous Wool Fat	3 *pts.*
Turpentine	2 *pts.*

Triturate them together.

The ointment is yellowish-brown in color.

UNGUENTUM CAMPHORATUM.

Camphor Ointment.

Purified Camphor	1 *pt.*
Sesame Oil	14 *pts.*
Ox Tallow	35 *pts.*

Dissolve purified camphor in sesame oil, and triturate the mixture together with ox-tallow, which has been previously melted.

A white ointment having the odor of camphor.

UNGUENTUM CANTHARIDUM.

Cantharides Ointment.

Oil of Cantharides	3 *pts.*
Yellow Wax	2 *pts.*

Benzoin, *in fine powder*	0,15 *pts.*

Triturate them together.

The ointment is yellow in color.

UNGUENTUM GLYCERINI.

Glycerin Ointment.

Glycerin	90 *pts.*
Starch	10 *pts.*
Distilled Water	15 *pts.*

Thoroughly mix starch with distilled water, add glycerin to the mixture, and heat on a water bath, thoroughly agitating until the whole becomes homogeneous and weighs 100 parts.

A trans'ucent, gelatinous ointment.

UNGUENTUM HEBRAE.

Hebra's Ointment.

Lead Plaster	1 *pt.*
Arachis Oil	1 *pt.*

Melt them together by heating on a water bath, and stir the mixture until it is cold.

The ointment is from grayish-white to yellowish in color.

UNGUENTUM HYDRARGYRI ALBUM.

Ointment of Ammoniated Mercury.

White Precipitate Ointment.

Ammoniated Mercury	1 *pt.*
Yellow Vaseline	9 *pts.*

Triturate them together.

The ointment is pale yellow in color.

Prepare it freshly when required for use.

O UNGUENTUM HYDRARGYRI CINEREUM.

Mercurial Ointment.

Mercury	30 *pts.*
Anhydrous Wool Fat	7 *pts.*
Benzoinated Lard	16 *pts.*
Ox Tallow	37 *pts.*

Thoroughly triturate mercury with anhydrous wool fat until globules of mercury are no longer visible to the naked eye, then add a mixture of benzoinated lard and ox tallow, which has been previously melted and partially cooled, and triturate again intimately.

A gray to grayish-black ointment, which should show no globules of mercury visible to the naked eye.

Weigh 2 g of the ointment in a small flask, add 20 ccm of concentrated nitric acid, and heat the mixture for about 10 minutes on a water bath under a reflux condenser until no globules of mercury are visible.

Add 25 ccm of water, washing the condenser, heat again until the clear layer of fat separates out, and, after cooling, filter through purified cotton into a 100 ccm flask ; wash the fat and the flask with 5 successive portions of about 5 ccm each of water, and unite the washings with the filtrate.

To the united liquid add potassium permanganate solution until a permanent pink color or a brown precipitate is produced, make it colorless or clear by the addition of ferrous sulphate solution, then add water to make it measure 100 ccm, and filter. To 25 ccm of the filtrate add 2 ccm of ammonium ferric sulphate solution, and titrate it with tenth-normal ammonium sulphocyanate volumetric solution ; 16,5 ccm of the volumetric solution should be required to produce a brownish-red color.

UNGUENTUM HYDRARGYRI FLAVUM.

Ointment of Yellow Mercuric Oxide.

Yellow Mercuric Oxide	1 *pt.*
Yellow Vaseline	9 *pts.*

Triturate them together.

The ointment is yellow in color.

Prepare it when required for use.

UNGUENTUM HYDRARGYRI RUBRUM.

Ointment of Red Mercuric Oxide.

Red Mercuric Oxide	1 *pt.*
Yellow Vaseline	9 *pts.*

Triturate them together.

The ointment is red in color.

Prepare it when required for use.

UNGUENTUM KALII JODATI.

Ointment of Potassium Iodide.

Potassium Iodide	20 *pts.*
Sodium Thiosulphate	0,25 *pts.*
Distilled Water	15 *pts.*
Hog's Lard	165 *pts.*

Dissolve potassium iodide and sodium thiosulphate by triturating in distilled water, and mix the solution with hog's lard.

The ointment is white in color.

When it is prescribed together with free iodine, it should be prepared without adding sodium thiosulphate.

UNGUENTUM PICIS LIQUIDAE.

Tar Ointment.

Tar	10 *pts.*
Yellow Wax	4 *pts.*

Melt them together by warming gently, and stir the mixture until it cools.

Tar Ointment is dark brown in color.

UNGUENTUM SCOPOLIAE.

Scopolia Ointment.

Extract of Scopolia	1 *pt.*
Benzoinated Lard	9 *pts.*

Triturate the extract with a small quantity of distilled water to the consistence of a thin extract, and triturate it with benzoinated lard.

A brown ointment.

Prepare it when required for use.

O UNGUENTUM SIMPLEX.

Ointment. *Simple Ointment.*

Yellow Wax	1 *pt.*
Sesame Oil	2 *pts.*

Melt them on a water bath, and stir the mixture until it cools.

A yellow ointment.

UNGUENTUM VESICANS FORTIUS.

Strong blistering Ointment.

Cantharides, *in medium powder*	4 *pts.*

Acetone	8 *pts.*
Arachis Oil	9 *pts.*
Yellow Wax	7 *pts.*
Turpentine	3 *pts.*

Add 4 parts of acetone to cantharides, heat the mixture for 4 hours on a water bath under a reflux condenser, and then decant the solution. Pour 4 parts of acetone upon the residue, repeat the extraction as before, and decant the solution.

Unite the solutions, filter, and remove the acetone by distillation.

Melt the crude cantharidin, here obtained, together with arachis oil, yellow wax and turpentine, and stir the mixture until it cools.

A brownish-yellow ointment.

Preserve it with care.

UNGUENTUM VESICANS MITIUS.

Mild blistering Ointment.

Cantharides, *in medium powder*	1 *pt.*
Acetone	2 *pts.*
Arachis Oil	14 *pts.*
Yellow Wax	25 *pts.*

Add 1 part of acetone to cantharides, heat the mixture for 4 hours on a water bath under a reflux condenser, and then decant the solution. Pour 1 part of acetone upon the residue, repeat the extraction as before, and decant the solution.

Unite the solutions, filter, and remove the acetone by distillation. Dissolve the crude cantharidin, here obtained, in arachis oil by warming on a water bath, then add yellow wax, which has been previously melted, and stir the mixture until it cools.

A yellow ointment.

UNGUENTUM WILLKINSONI.

Willkinson's Ointment.

Tar	1 *pt.*
Sublimed Sulphur	1 *pt.*
Potash Soap	2 *pts.*
Benzoinated Lard	2 *pts.*
Purified Talc	0,5 *pts.*

Triturate together tar, sublimed sulphur, potash soap and benzoinated lard, and mix purified talc with the mixture.

A grayish-brown ointment.

UNGUENTUM WILSONI.

Wilson's Ointment.

Zinc Oxide	5 *pts.*
Benzoic Acid	1 *pt.*
Hog's Lard	30 *pts.*

Triturate them together.

The ointment is white in color.

O UNGUENTUM ZINCI.

Ointment of Zinc Oxide.

Zinc oxide	1 *pt.*
Benzoinated Lard	9 *pts.*

Triturate zinc oxide with benzoinated lard.

A white ointment.

VASELINUM ALBUM.

White Vaseline.

The yellow vaseline, bleached.

A white or whitish, homogeneous, translucent, ointment-like mass, without odor and taste; neither granular nor crystalline under the microscope. On warming, it turns to a clear, colorless or almost colorless, odorless liquid, showing a blue fluorescence. Insoluble in water, slightly soluble in alcohol, readily soluble in ether, and in chloroform. Melting point: 35–42°.

A liquid, obtained by shaking 5 g of White Vaseline with 20 ccm of boiling water, should remain colorless on the addition of 2 drops of phenolphthalein solution; the further addition of 0,1 ccm of tenth-normal potassium hydroxide volumetric solution should impart a red tint to the liquid.

Boil 5 g of White Vaseline with a mixture of 3 ccm of sodium hydroxide solution and 20 ccm of water, with agitation, cool the mixture sufficiently, and filter; the filtrate should deposit neither a precipitate nor an oily substance on supersaturating with diluted sulphuric acid.

Mix 10 g of White Vaseline with 5 ccm of a mixture of 5 parts of distilled water and 15 parts of sulphuric acid, and warm the mixture on a water bath with agitation; it should produce no brown color within 15 minutes.

O VASELINUM FLAVUM.

Yellow Vaseline.

A purified mineral tar, obtained from the distillation residue of petroleum.

A yellow, homogeneous, translucent, ointment-like mass, without odor and taste; neither granular nor crystalline under the microscope. On warming, it turns to a clear, yellow, almost inodorous liquid with a blue fluorescence. Insoluble in water, slightly soluble in alcohol, readily soluble in ether, and in chloroform. Melting point: 35–42°.

A liquid, obtained by shaking 5 g of Yellow Vaseline with 20 ccm of boiling water, should remain colorless on the addition of 2 drops of phenolphthalein solution; the further addition of 0,1 ccm of tenth-normal potassium hydroxide volumetric solution should impart a red tint to the liquid.

Boil 5 g of Yellow Vaseline with a mixture of 3 ccm of sodium hydroxide solution and 20 ccm of water with agitation, cool the mixture sufficiently, and filter; the filtrate should deposit neither a precipitate nor an oily substance on supersaturating with diluted sulphuric acid.

10 g of Yellow Vaseline, when warmed on a water bath, with agitation, with 5 ccm of a mixture of 5 parts of distilled water and 25 parts of sulphuric acid, should not become brown within 15 minutes.

VINA.

Medicated Wines.

Medicated Wines are the preparations, obtained by dissolving the medicinal substances in sherry wine or wine, or by macerating them with the latter.

The preparation and preservation of medicated wines should conform to those described under *Tincturae*.

VINUM.

Wine.

A beverage obtained by fermenting the juice of grapes.

Wine should be pure and good in quality, and the sour, adulterated, or imitated one should be rejected.

Those which are mixed, during or after the manufacture, with the soluble compounds of aluminium, barium, magnesium, bismuth, fluorine, or of strontium, methyl alcohol, glycerin, oxalic acid, impure alcohol containing fusel oil, impure starch sugar, coloring matters, artificial sweetening materials, antiseptics, or substances containing above mentioned, should not be used.

Wine should not contain in 100 ccm sulphuric acid corresponding to not less than 0,2 g of potassium sulphate.

Sweet wines such as sherry, madeira, marsala, malaga and port-wine should contain in 100 ccm 11–16 g of alcohol and not more than 8 g of the extractive matter.

The standards of judgement and the methods of testing concerning wine are stated in another regulation.

VINUM CHINAE.

Wine of Cinchona.

Cinchona Bark, *in coarse powder*	40 *pts.*
White Sugar	100 *pts.*
Gelatin	1 *pt.*
Sherry Wine	1000 *pts.*
Tincture of Bitter Orange Peel	2 *pts.*
Distilled Water	10 *pts.*

Dissolve gelatin in distilled water by warming, mix sherry and cinchona bark, macerate for 8 days, and then express.

To the expressed liquid add the sugar and tincture, allow it to stand for 14 days in a cool place, and then filter.

A reddish-brown liquid, having an agreeable, bitter taste.

VINUM COLCHICI.

Wine of Colchicum.

Colchicum Seed, *in coarse powder*	1 *pt.*
Sherry Wine	10 *pts.*

Macerate the seed with sherry wine for 8 days with occasional agitation, press, and then filter.

A clear, yellowish-brown liquid, having a bitter taste. Colchicum Wine should produce, on the addition of ferric chloride solution, a greenish-brown color, but not a dark green color.

Preserve it with care.

Maximum dose at a time : 2 g.
Maximum dose for a day : 6 g.

VINUM CONDURANGO.

Wine of Condurango.

Condurango Bark, *in coarse powder*	1 *pt.*
Sherry Wine	10 *pts.*

Macerate the powder with sherry wine for 8 days with occasional agitation, press, and filter.

A brown liquid, which, on warming, becomes turbid, emitting the conspicuous odor of condurango bark, and becomes clear or almost clear again when cooled.

VINUM FERRI.

Wine of Iron.

Iron and Ammonium Citrate	1 *pt.*
White Wine	49 *pts.*

Dissolve iron and ammonium citrate in white wine, and filter.

A clear, yellowish-brown liquid.

VINUM IPECACUANHAE.

Wine of Ipecacuanha.

Ipecacuanha Root, *in coarse powder*	1 *pt.*
Sherry Wine	10 *pts.*

Macerate the drug with sherry wine for 8 days with occasional agitation, press, and then filter.

A clear, yellowish-brown liquid.

Preserve it with care.

VINUM OPII AROMATICUM.

Aromatic Wine of Opium.

Opium	1 *pt.*
Saffron, *medium cut*	1 *pt.*
Cassia Bark, *in coarse powder*	1 *pt.*
Cloves, *in coarse powder*	1 *pt.*
Diluted Alcohol	7 *pts.*
Sherry Wine	85 *pts.*

Macerate saffron, cassia bark and cloves with diluted alcohol and sherry wine for 5 days, and then express. To 10 parts of the expressed liquid add opium, macerate for 7 days, express, and filter the expressed liquid.

A clear, dark yellowish-brown, aromatic liquid, having a bitter taste.

Aromatic Wine of Opium contains in 10 parts the soluble constituents of 1 part of opium.

Evaporate 50 g of Aromatic Wine of Opium on a water bath, and assay the residue according to the method described under *Opium*; 12,2–12,9 ccm of tenth-normal potassium hydroxide volumetric solution should be required for neutralization. The neutralized solution should conform to the tests under *Opium*.

Preserve it with care.

Maximum dose at a time : 1,5 g.

Maximum dose for a day : 5 g.

VINUM PEPSINI.

Wine of Pepsin.

Saccharated Pepsin	20 *pts.*
Glycerin	10 *pts.*
Distilled Water	10 *pts.*
Hydrochloric Acid	1 *pt.*
White Wine	360 *pts.*

Triturate saccharated pepsin, glycerin and distilled water to make a thin paste, add hydrochloric acid and white wine, allow the mixture to stand for 7 days with frequent shaking, and then filter.

A clear, yellowish or reddish liquid.

To a mixture of 2 g of Wine of Pepsin, 98 ccm of water and 0,5 ccm of hydrochloric acid add 10 g of albumen, obtained by heating a fresh egg for about 8 minutes in boiling water and rubbing the cooled albumen twice through No. 4 sieve, and allow the mixture to stand at 50° with frequent shaking; the albumen should be almost completely dissolved within 2 hours.

ZINCUM CHLORATUM.

Zinc Chloride.

$ZnCl_2 = 136,29$

A white, crystalline powder, or white stick ; deliquescent in the air ; readily soluble in water, and in alcohol, showing an acid reaction. When heated, it fuses, decomposes, emitting white fumes, and leaves a yellow residue, which turns white on cooling.

An aqueous solution of Zinc Chloride yields, with ammonia water, a white precipitate, soluble in an excess of the reagent, and, with silver nitrate solution, a white precipitate, insoluble in diluted nitric acid.

A solution obtained by dissolving 1 g of Zinc Chloride in 1 ccm of water, which has been freshly boiled and cooled, should remain clear or not more than opalescent. Add 3 volumes of alcohol to 1 volume of the same solution ; the flocculent precipitate should disappear on the addition of 1 drop of diluted hydrochloric acid.

An aqueous solution (1 : 10) of Zinc Chloride, after the addition of hydrochloric acid, should produce neither turbidity with barium nitrate solution nor coloration with hydrogen sulphide water.

1 g of Zinc Chloride should dissolve clearly in a mixture of 10 ccm each of water and ammonia water. 2 ccm of the resulting solution should produce, with an excess of hydrogen sulphide water, a pure white precipitate ; the filtrate should leave no weighable solid residue, when evaporated and heated strongly.

Preserve it with care, in well-stoppered bottles.

ZINCUM OXYDATUM. *Flores Zinci.*

Zinc Oxide.

$ZnO=81,37$

An amorphous, white or faintly yellowish powder, without odor and taste ; insoluble in water, readily soluble in acetic acid.

At a red heat Zinc Oxide assumes a yellow color, which disappears on cooling. An acetic acid solution of Zinc Oxide produces, with a small quantity of sodium hydroxide solution, a white precipitate, which is soluble in an excess of the reagent.

A mixture of 1 g of Zinc Oxide and 3 ccm of stannous chloride solution should not become dark within 1 hour. Shake 2 g of Zinc Oxide with 20 ccm of water, and filter ; the filtrate should produce no more than an opalescence with barium nitrate solution, or with silver nitrate solution.

1 g of Zinc Oxide, moistened with water, should dissolve completely without effervescence in 10 ccm of acetic acid. The acetic acid solution should not be rendered turbid by diluted sulphuric acid, and should it remain clear and colorless on the addition of an excess of ammonia water. The ammoniacal solution, when saturated with hydrogen sulphide, should yield a white or almost white precipitate, and the filtrate, when evaporated and heated strongly, should leave not more than 0,4 per cent. of solid residue.

ZINCUM SULFOCARBOLICUM.

Zinc Phenolsulphonate.

$ZnC_{12}H_{10}O_8S_2 + 8H_2O = 555,76$

Colorless, transparent crystals, almost without odor; efflorescent in the air; soluble in 2,5 parts of water, and in 5 parts of alcohol, showing a weak acid reaction.

An aqueous solution of Zinc Phenolsulphonate produces a violet color with ferric chloride solution, and a white precipitate with ammonium sulphide.

An aqueous solution (1 : 10) of the salt should not be rendered turbid by diluted sulphuric acid, or, after the addition of an excess of ammonia water, by ammonium oxalate solution; the same solution should produce no more than an opalescence with barium nitrate solution. 10 ccm of the same solution, when mixed with ammonia water, should remain clear and colorless, and the resulting solution should not be colored from brown to blackish by the addition of 2–3 drops of hydrogen sulphide water.

Add 10 ccm of hydrogen sulphide water to 1 ccm of the same aqueous solution, warm, and then filter; the filtrate, when evaporated and heated strongly, should leave no weighable solid residue.

When heated strongly, 1 g of the salt should leave about 0,146 g of residue.

When dried at 125°, Zinc Phenolsulphonate should lose not more than about 26 per cent. of its weight.

Preserve it with care, in well-stoppered bottles.

O ZINCUM SULFURICUM.

Zinc Sulphate.

$ZnSO_4 + 7H_2O = 287,54$

Colorless crystals, slowly efflorescent in dry air ; soluble in 0,6 parts of water, showing an acid reaction, but almost insoluble in alcohol.

An aqueous solution of Zinc Sulphate produces at first a precipitate with sodium hydroxide solution, then becomes clear and colorless with an excess of the reagent, and finally produces a white precipitate on the further addition of hydrogen sulphide water. The same aqueous solution produces, with barium nitrate solution, a white precipitate, insoluble in diluted acids.

0,5 g of Zinc Sulphate should dissolve clearly and colorlessly in a mixture of 10 ccm of water and 5 ccm of ammonia water.

When heated with sodium hydroxide solution, the salt should not evolve ammonia.

Add 2 ccm of sulphuric acid to 2 ccm of an aqueous solution (1 : 10) of Zinc Sulphate, and add, after cooling, 1 ccm of ferrous sulphate solution, so as to form 2 layers ; no brownish zone should appear at the line of contact.

An aqueous solution (1 : 20) of Zinc Sulphate should not become turbid with silver nitrate solution, nor should it acquire a red color with methyl orange solution.

Preserve it with care.

Maximum dose at a time : 1 g.

ZINCUM VALERIANICUM.

Zinc Valerianate.

$Zn(C_5H_9O_2)_2 + 2H_2O = 303,6$

White, pearly, tabular crystals, or a white, crystalline powder, having the odor of valerianic acid and a slightly sweet, astringent taste; soluble in about 100 parts of water, and in about 40 parts of alcohol, showing an acid reaction.

A cold, saturated, aqueous solution of Zinc Valerianate becomes turbid on warming, and clear again on cooling.

An aqueous solution of the salt produces a white precipitate with ammonium sulphide. When moistened with water and mixed with hydrochloric acid, Zinc Valerianate separates oil globules having the odor of valerianic acid.

Dissolve 0,5 g of Zinc Valerianate in a mixture of 0,5 ccm of hydrochloric acid and 4,5 ccm of water, and filter off the oil globules; the clear filtrate should not be affected by 10 ccm of hydrogen sulphide water.

1 g of Zinc Valerianate should dissolve completely in 10 ccm of ammonia water. 5 ccm of the resulting solution should produce a pure white precipitate with ammonium sulphide, and the filtrate, when evaporated and strongly heated, should leave no weighable solid residue.

Add to 0,5 g of Zinc Valerianate 2 ccm of water and 4 drops of ferric chloride solution, and filter off the reddish-brown precipitate; the filtrate should not be red.

A cold, saturated, aqueous solution of Zinc Valerianate should not be rendered turbid by the addition of concentrated copper acetate solution.

Shake 1 part of Zinc Valerianate with 20 parts of water, and filter; the filtrate, mixed with 2–3 drops of nitric acid, should produce no more than a slight turbidity with silver nitrate solution, or with barium nitrate solution.

Repeatedly moisten 1 g of Zinc Valerianate with nitric acid, dry it by the aid of gentle heat, and then heat strongly; 0,26–0,27 g of solid residue should remain.

Preserve it with care.

REAGENTIA.—*Reagents.*

Acidum aceticum.—*Acetic Acid.*—Use the official acetic acid.

Acidum aceticum anhydricum.—*Acetic Anhydride* (*Acetic Acid Anhydride*), $C_4H_6O_3$.—A colorless, clear liquid of a pungent odor. Specific gravity: 1,08. Boiling point: 135–139°.

Acidum aceticum glaciale.—*Glacial Acetic Acid.*—Use the official glacial acetic acid.

Acidum hydrochloricum.—*Hydrochloric Acid.*— Use the official hydrochloric acid.

Acidum hydrochloricum dilutum.—*Diluted Hydrochloric Acid.*—Use the official diluted hydrochloric acid.

Acidum hydrochloricum fumans.—*Fuming Hydrochloric Acid.*—A colorless, fuming liquid. Specific gravity: 1,19. It contains 37,2 per cent. of pure hydrogen chloride ($HCl = 36{,}47$).

Acidum nitricum.—*Nitric Acid.*—Use the official nitric acid.

Acidum nitricum concentratum.—*Concentrated Nitric Acid.*—A colorless or nearly colorless, clear liquid. Specific gravity 1,316. It contains 50 per cent. of pure nitric acid ($HNO_3 = 63{,}02$).

Acidum nitricum crudum.—*Crude Nitric Acid.*—Use the official crude nitric acid.

Acidum nitricum dilutum.—*Diluted Nitric Acid.*—Use the official diluted nitric acid.

Acidum nitricum fumans.—*Fuming Nitric Acid.*—Use the official fuming nitric acid.

Acidum oxalicum.—*Oxalic Acid,* $C_2H_2O_4 + 2H_2O = 126{,}06$.—Colorless, prismatic crystals, efflorescent in dry air. It should volatilize, when heated, without leaving any solid residue.

Acidum sulfuricum.—*Sulphuric Acid.*—Use the official sulphuric acid.

Acidum sulfuricum dilutum.—*Diluted Sulphuric Acid.*—Use the official diluted sulphuric acid.

Acidum trichloraceticum.—*Trichloracetic Acid.*—Use the official trichloracetic acid.

Aether.—*Ether.*—Use the official ether.

Aether absolutus.—*Pure Ether.*—A colorless, clear, volatile liquid. Specific gravity: 0,72.

Preserve it in well-stoppered bottles, containing potassium carbonate, previously heated strongly and then cooled, in a cool dark place, protected from light.

Aether Petrolei.—*Petroleum Ether.*—Boiling point: 40–50°.

Alcohol absolutus.—*Absolute Alcohol.*—Use the official absolute alcohol.

Alcohol amylicus.—*Amyl Alcohol.*—A colorless, clear, volatile liquid. Specific gravity: 0,814. Boiling point: 129–131°.

Ammonium sulfuratum.—*Ammonium Sulphide.*—Saturate 3 parts of ammonia water with hydrogen sulphide, and add to the solution 2 parts of ammonia water.

Amylum.—*Starch.*—Use the official starch.

Amylum e Solano tuberoso paratum.—*Potato-Starch.*—Use the official potato-starch.

Amylum solubile.—*Soluble Starch.*—Add a mixture of 5 g of sulphuric acid and 1 L of water to 100 g of potato-starch, boil the mixture for 20–30 minutes, until it becomes somewhat fluid, then add barium carbonate to neutralize it, and filter. After concentrating the filtrate by evaporation, pour 2–3 times its volumes of alcohol into it, collect the precipitate on a filter, and dry it by gentle heat. Its aqueous solution should be neutral to litmus papers.

Anilinum.—*Aniline.*—A colorless or yellowish, clear liquid. Specific gravity: 1,026–1,027. Boiling point: 182–183°.

Aqua Ammoniae.—*Ammonia Water.*—Use the official ammonia water.

Aqua Barytae.—*Baryta Water.*—Dissolve 1 part of crystallized barium hydroxide [$Ba(OH)_2 + 8H_2O$] in 19 parts of distilled water.

Aqua bromata.—*Bromine Water.*—A saturated, aqueous solution of bromine.

Aqua Calcariae.—*Lime Water.*—Use the official lime water.

Aqua chlorata.—*Chlorine Water.*—A saturated aqueous solution of chlorine.

Aqua hydrosulfurata.—*Hydrogen Sulphide Water.*—A saturated aqueous solution of hydrogen sulphide.

Aqua jodata.—*Iodine Water.*—A saturated, aqueous solution of iodine.

Aqua regia.—*Aqua Regia.*—When wanted for use, mix 3 parts of hydrochloric acid with 1 part of nitric acid.

Benzinum Petrolei.—*Petroleum Benzin.*—Use the official petroleum benzin.

Benzolum.—*Benzene.*—Use the official benzene.

Beta-Naphtholum.—*Betanaphthol (Naphthol).*—Use the official betanaphthol.

Bismutum subnitricum.—*Bismuth Subnitrate.*—Use the official bismuth subnitrate.

Borax.—*Borax.*—Use the official borax.

Bromum.—*Bromine.*—Use the official bromine.

Calcaria hydrata.—*Slaked Lime,* $Ca(OH)_2$.—A fine powder, freshly prepared by adding 1 part of water to 2 parts of quicklime.

Calcaria usta e Marmore parata.—*Burnt Marble.*—Quicklime, prepared by calcining marble.

Calcium carbonicum. — *Calcium Carbonate.*—It should not contain chlorine.

Carbo Ligni pulveratus.—*Powdered Charcoal.*

Carboneum sulfuratum.—*Carbon Disulphide,* CS_2.—A colorless, clear liquid, highly refractive. Specific gravity: 1,272. Boiling point: 46°.

Charta exploratoria coerulea.—*Blue Litmus Paper.*—A good filter paper, impregnated in the litmus solution and dried at ordinary temperature, protected from light. It should immediately turn red with 1 drop of a mixture of 1 ccm of tenth-normal hydrochloric acid volumetric solution and 99 ccm of water.

Preserve it protected from light.

Charta exploratoria lutea.—*Turmeric Paper.*—A good filter paper, impregnated in a solution prepared by diluting 1 part of turmeric tincture with 3 parts of alcohol and 4 parts of water, and dried at ordinary temperature protected from light. It should immediately turn brown with 1 drop of a mixture of 1 ccm of tenth-normal potassium hydroxide volumetric solution and 25 ccm of water.

Preserve it protected from light.

Charta exploratoria rubra.—*Red Litmus Paper.*—A good filter paper, impregnated in a solution prepared by adding diluted sulphuric acid, drop by drop, to the litmus solution, until 1 part of the solution, when diluted with about 100 parts of water, assumes a faint red tint, and dried at ordinary temperature, protected from light. It should immediately turn blue with 1 drop of a mixture of 1 ccm of tenth-normal potassium hydroxide volumetric solution and 99 ccm of water.

Preserve it protected from light.

Charta Kalii jodici cum Amylo.—*Potassium Iodate and Starch Paper.*—A good filter paper, impregnated in a solution prepared by dissolving 0,1 part of potassium iodate (KJO_3) and 1 part of soluble starch in 100 parts of distilled water, and dried at ordinary temperature, protected from light.

Preserve it protected from light.

Charta Zinci jodati cum Amylo.—*Zinc Iodide and Starch Paper.*—A good filter paper, impregnated in the zinc iodide and starch solution, and dried at ordinary temperature, protected from light.

Preserve it protected from light.

Chloroformium.—*Chloroform.*—Use the official chloroform.

Chloroformium absolutum.—*Pure Chloroform.*—A colorless, clear liquid. Specific gravity: 1,502.

Preserve it in small, partially filled, amber-colored, well-stoppered, bottles, in a cool dark place.

Collodium.—*Collodion.*—Use the official collodion.

Cuprum raspatum.—*Copper Filings.*

Ferrum pulveratum.—*Iron Powder.*—Use the official iron powder.

Ferrum sulfuricum.—*Ferrous Sulphate.*—Use the official ferrous sulphate.

Formalinum.—*Formaline.*—Use the official formaline.

Glycerinum.—*Glycerin.*—Use the official glycerin.

Haematoxylinum.—*Haematoxylin.*—Colorless, acicular crystals; sparingly soluble in water, readily soluble in boiling water, alcohol, and in ether. Its aqueous solution, when shaken with sodium hydroxide solution or sodium carbonate solution, produces a bluish-violet color.

Hydrargyrum oxydatum flavum.—*Yellow Mercuric Oxide.*—Use the official yellow mercuric oxide.

Hydrogenium sulfuratum.—*Hydrogen Sulphide.*—Hydrogen sulphide gas, washed and purified by passing through water.

Jodum.—*Iodine.*—Use the official iodine.

Kali causticum.—*Potassium Hydroxide.*—Use the official potassium hydroxide.

Kalio-Natrium tartaricum.—*Potassium and Sodium Tartrate.*—Use the official potassium and sodium tartrate.

Kalium jodatum.—*Potassium Iodide.*—Use the official potassium iodide.

Kalium nitricum.—*Potassium Nitrate.*—Use the official potassium nitrate.

Lac Calcariae.—*Milk of Lime.*—A mixture of slaked lime and water.

Liquor Kali caustici.—*Potassium Hydroxide Solution.*—Use the official solution of potassium hydroxide.

Liquor Kali caustici spirituosus.—*Alcoholic Potassium Hydroxide Solution.*—Dissolve 1 part of fused potassium hydroxide in 9 parts of alcohol, when required for use.

Liquor Natri caustici.—*Sodium Hydroxide Solution.*—A solution, prepared by dissolving 1 part of sodium hydroxide in 5 parts of distilled water. Specific gravity: about 1,17. It contains 15 per cent. of pure sodium hydroxide ($NaOH = 40,01$).

Liquor Natri caustici spirituosus.—*Alcoholic Sodium Hydroxide Solution.*—Dissolve 1 part of sodium hydroxide in 9 parts of alcohol.

Liquor Plumbi subacetici.—*Lead Subacetate Solution.*—Use the official solution of lead subacetate.

Manganum hyperoxydatum nativum.—*Manganese Dioxide.*—It contains not less than 60 per cent. of manganese dioxide (MnO_2).

Natrium aceticum fusum.—*Fused Sodium Acetate,* $NaC_2H_3O_2$.—Heat sodium acetate, stirring constantly, until it becomes white powder, then increase the temparature until it again fuses, and transfer it to small, well-stoppered, dry bottles, which have been previously warmed.

Natrium bisulfurosum. — *Sodium Bisulphite,* $NaHSO_3$. — A white, crystalline powder, with the odor of sulphur dioxide.

Preserve it in well-stoppered bottles, protected from light.

Natrium carbonicum siccum.—*Exsiccated Sodium Carbonate.*—Use the official exsiccated sodium carbonate.

Natrium chloratum.—*Sodium Chloride.*—Use the official sodium chloride.

Natrium nitro-ferricyanatum.—*Sodium Nitroprusside,* $Na_2FeC_5N_6O + 2H_2O$.—Dark red, transparent crystals.

Natrium nitrosum.—*Sodium Nitrite,* $NaNO_2$.—White or yellowish, crystalline masses or sticks.

Preserve it in well-stoppered bottles.

Natrium sulfuricum.—*Sodium Sulphate.*—Use the official sodium sulphate.

Natrium sulfuricum siccum.—*Exsiccated Sodium Sulphate.*—Use the official exsiccated sodium sulphate.

Natrium sulfurosum crystallisatum.—*Crystallized Sodium Sulphite,* $Na_2SO_3 + 7H_2O$.—Colorless, prismatic crystals, efflorescent in the air.

Preserve it in well-stoppered bottles.

Natrum causticum.—*Sodium Hydroxide.*—Use the official sodium hydroxide.

Oleum Terebinthinae.—*Turpentine Oil* (*Oil of Turpentine*).—Use the official oil of turpentine.

Pepsinum saccharatum. — *Saccharated Pepsin.* — Use the official saccharated pepsin.

Phenylhydrazinum hydrochloricum.—*Phenylhydrazine Hydrochloride,* $C_6H_8N_2.HCl$.—Nearly colorless, lustrous crystals.

Preserve it in well-stoppered bottles, protected from light.

Reagens Mayeri.—*Mayer's Reagent.*—Dissolve 13,576 g of mercuric chloride and 49,81 g of potassium iodide in distilled water to make the solution measure 1 L.

Reagens Nessleri.—*Nessler's Reagent.*—Dissolve 5 g of potassium iodide in 5 ccm of boiling distilled water, and add in portions a solution of 2,5 g of mercuric chloride in 10 ccm of boiling distilled water with agitation, until a part of the precipitate remains undissolved. Add to the cooled mixture a solution of 15 g of potassium hydroxide in 30 ccm of distilled water, dilute the solution with distilled water until it measures 100 ccm, then add 0,5 ccm of mercuric chloride solution, set it aside, and decant the clear liquid.

Preserve it in well-stoppered, amber-colored bottles.

Saccharum.—*Sugar* (*White Sugar*).—Use the official white sugar.

Saccharum Lactis.—*Milk Sugar.*—Use the official milk sugar.

Solutio Acidi carbolici.—*Carbolic Acid Solution.*—Dissolve 1 part of carbolic acid in 19 parts of distilled water, when required for use.

Solutio Acidi chromici.—*Chromic Acid Solution*—Dissolve 3 parts of chromic acid in 97 parts of distilled water.

Solutio Acidi picrinici.—*Picric Acid Solution.*—Dissolve 1 part of picric acid in 99 parts of distilled water.

Solutio Acidi rosolici.—*Rosolic Acid Solution.*—Dissolve 1 part of rosolic acid ($C_{19}H_{14}O_3$) in 99 parts of diluted alcohol.

Solutio Acidi sulforosanilinici.—*Fuchsin Sulphurous Acid Solution.*—A colorless or faintly yellow liquid prepared by dissolving about 0,1 g of powdered, crystallized fuchsin and 0,7 g of sodium bisulphite in 88 ccm of water and adding, after 1 hour, 25 drops of hydrochloric acid. Add 5 ccm of an aqueous solution (1 : 100000) of formaldehyde and 1 ccm of sulphuric acid to 5 ccm of the test solution in a test tube, stopper, agitate, and allow it to stand for 1 hour; it should be colored violet-red.

Preserve it in well-stoppered bottles, in a cool place, protected from light.

Solutio Acidi sulfurosi.—*Sulphurous Acid Solution.*—Acidify freshly prepared solution (1 : 10) of sodium sulphite with diluted sulphuric acid, when required for use.

Solutio Acidi tannici.—*Tannic Acid Solution.*—Dissolve 1 part of tannic acid in 19 parts of distilled water, when required for use.

Solutio Acidi tartarici.—*Tartaric Acid Solution.*—Dissolve 1 part of tartaric acid in 4 parts of distilled water, when required for use.

Solutio Albuminis.—*Albumen Solution.*—When required for use, dissolve the white of hen's eggs in distilled water.

Solutio Ammonii carbonici.—*Ammonium Carbonate Solution.*—Dissolve 1 part of ammonium carbonate in a mixture of 3 parts of distilled water and 1 part of ammonia water.

Solutio Ammonii chlorati.—*Ammonium Chloride Solution.*—Dissolve 1 part of ammonium chloride in 9 parts of distilled water.

Solutio Ammonii molybdaenici.—*Ammonium Molybdate Solution.*—Dissolve 7,5 g of ammonium molybdate [$(NH_4)_6Mo_7O_{24} + 4H_2O$] in a mixture of 10 ccm of ammonia water and 40 ccm of distilled water, at a temperature not exceeding 50°; after cooling, filter the solution, and add the filtrate, under stirring, to 50 ccm of nitric acid (specific gravity: 1,2).

Solutio Ammonii oxalici.—*Ammonium Oxalate Solution.*—Dissolve 1 part of ammonium oxalate [$(NH_4)_2C_2O_4 + H_2O$] in 24 parts of distilled water.

Solutio Amyli.—*Starch Solution.*—When required for use, boil starch with distilled water, dilute the solution with water, and filter.

Solutio Argenti nitrici.—*Silver Nitrate Solution.*—Dissolve 1 part of silver nitrate in 19 parts of distilled water.

Solutio Baryi chlorati.—*Barium Chloride Solution.*—Dissolve 1 part of barium chloride ($BaCl_2 + 2H_2O$) in 9 parts of distilled water.

Solutio Baryi nitrici.—*Barium Nitrate Solution.*—Dissolve 1 part of barium nitrate [$Ba(NO_3)_2$] in 19 parts of distilled water.

Solutio Calcariae chloratae.—*Chlorinated Lime Solution.*—When required for use, triturate 1 part of chlorinated lime with 9 parts of distilled water, and filter.

Solutio Calcii chlorati.—*Calcium Chloride Solution.*—Dissolve 1 part of crystallized calcium chloride ($CaCl_2 + 6H_2O$) in 9 parts of distilled water.

Solutio Calcii sulfurici.—*Calcium Sulphate Solution.*—A saturated, aqueous solution of calcium sulphate ($CaSO_4 + 2H_2O$).

Solutio Cupri acetici.—*Copper Acetate Solution.*—When required for use, dissolve 1 part of copper acetate [$Cu(C_2H_3O_2)_2 + H_2O$] in 1000 parts of distilled water.

Solutio Cupri sulfurici.—*Copper Sulphate Solution.*—Dissolve 1 part of copper sulphate in 9 parts of distilled water.

Solutio Eosini jodati.—*Iodeosin Solution.*—Dissolve 1 part of iodeosin ($C_{20}H_8J_4O_5$) in 500 parts of alcohol.

Introduce 100 ccm of water into a colorless flask, pour ether on it, until the ethereal layer reaches 1 cm in thickness, add 1 drop of hundredth-normal hydrochloric acid volumetric solution and 5 drops of iodeosin solution, and shake the flask vigorously; the lower, aqueous layer should remain colorless. Then add 2 drops of hundredth-normal potassium hydroxide volumetric solution to the mixture, and shake it vigorously; a light red color should be developed.

Solutio Fehlingi.—*Fehling's Solution.*—Prepare 1 L of a solution by dissolving 69,315 g of crystallized copper sulphate in distilled water, and also 1 L of a solution by dissolving 346 g of potassium and sodium tartrate and 100 g of sodium hydroxide in distilled water and filtering through asbestos. Keep the solutions separately, and mix equal volumes of both when required for use.

Solutio Ferri sesquichlorati.—*Ferric Chloride Solution.*—Dissolve 1 part of ferric chloride in 9 parts of distilled water.

Solutio Ferri sesquichlorati diluta.—*Diluted Ferric Chloride Solution.*—Dissolve 1 part of ferric chloride in 199 parts of distilled water.

Solutio Ferri sulfurici.—*Ferrous Sulphate Solution.*—When required for use, dissolve 1 part of ferrous sulphate in a mixture of 1 part of distilled water and 1 part of diluted sulphuric acid.

Solutio Ferri sulfurici oxydati ammoniati.—*Ammonium Ferric Sulphate Solution.*—When required for use, dissolve 1 part of ammonium ferric sulphate $[(NH_4)_2Fe_2(SO_4)_4+24H_2O]$ in a mixture of 8 parts of distilled water and 1 part of diluted sulphuric acid.

Solutio Gelatinae.—*Gelatin Solution.*—When required for use, prepare a warm solution by mixing 1 part of gelatin with 99 parts of distilled water and dissolving it at 30–40°.

Solutio Haematoxylini.—*Haematoxylin Solution.*—Dissolve 1 part of haematoxylin in 99 parts of diluted alcohol.

Solutio Hydrargyri bichlorati.—*Mercuric Chloride Solution.*—Dissolve 1 part of mercuric chloride in 19 parts of distilled water.

Solutio Hydrargyri bichlorati spirituosa.—*Alcoholic Mercuric Chloride Solution.*—Dissolve 30 g of mercuric chloride in 500 ccm of alcohol.

Solutio Hydrogenii peroxydati diluta.—*Diluted Hydrogen Peroxide Solution.*—When required for use, mix 3 volumes of the solution of hydrogen peroxide with 97 volumes of distilled water.

Solutio Jodi.—*Iodine Solution.*—Use tenth-normal iodine volumetric solution.

Solutio Jodi spirituosa.—*Alcoholic Iodine Solution.*—Dissolve 25 g of iodine in 500 ccm of alcohol.

Solutio Kalii acetici.—*Potassium Acetate Solution.*—Use the official solution of potassium acetate.

Solutio Kalii bichromici.—*Potassium Bichromate Solution.*—Dissolve 1 part of potassium bichromate $(K_2Cr_2O_7)$ in 19 parts of distilled water.

Solutio Kalii bisulfurici.—*Potassium Bisulphate Solution.*—Dissolve 1 part of potassium bisulphate ($KHSO_4$) in 9 parts of distilled water.

Solutio Kalii carbonici.—*Potassium Carbonate Solution.*—Dissolve 11 parts of potassium carbonate in about 20 parts of distilled water. Specific gravity: 1,330–1,334.

Solutio Kalii chromici.—*Potassium Chromate Solution.*—Dissolve 1 part of potassium chromate (K_2CrO_4) in 19 parts of distilled water.

Solutio Kalii ferricyanati. *Potassium Ferricyanide Solution.*—When required for use, dissolve 1 part of potassium ferricyanide [$K_3Fe(CN)_6$], previously washed with water, in 19 parts of distilled water.

Solutio Kalii ferrocyanati.—*Potassium Ferrocyanide Solution.*—When required for use, dissolve 1 part of potassium ferrocyanide ($K_4Fe(CN)_6 + 3H_2O$), previously washed with water, in 19 parts of distilled water.

Solutio Kalii jodati.—*Potassium Iodide Solution.*—When required for use, dissolve 1 part of potassium iodide in 9 parts of distilled water.

Solutio Kalii permanganici.—*Potassium Permanganate Solution.*—Dissolve 1 part of potassium permanganate in 1000 parts of distilled water.

Solutio Kalii sulfocyanati.—*Potassium Sulphocyanate Solution.*—Dissolve 1 part of potassium sulphocyanate (KCNS) in 19 parts of distilled water.

Solutio Laccae musicae.—*Litmus Solution.*—Exhaust powdered litmus several times with boiling water, filter it, slightly acidify the filtrate with acetic acid, and evaporate it on a water bath, until it attains the consistence of a thick extract. Triturate the residue with alcohol, transfer it into a large flask, then add a large quantity of alcohol, and set it aside for several hours. Filter it, wash the precipitate on the filter paper several times with alcohol, dry it by gentle heat, and filter the solution obtained by dissolving 1 part of the precipitate in 10 parts of water. Boil the filtrate, and add, drop by drop, water, acidified with sulphuric acid (obtained by adding 1 drop of the acid to 100 ccm of water), until 1 part of the solution, when diluted with about 100 parts of water, shows a violet-blue color.

Preserve it in bottles, stoppered with plugs of purified cotton.

Solutio Magnesii sulfurici.—*Magnesium Sulphate Solution.*—Dissolve 1 part of magnesium sulphate in 9 parts of distilled water.

Solutio Natrii acetici.—*Sodium Acetate Solution.*—Dissolve 1 part of sodium acetate in 4 parts of distilled water.

Solutio Natrii bicarbonici.—*Sodium Bicarbonate Solution.*—When required for use, dissolve 1 part of powdered sodium bicarbonate, by gentle shaking, in 19 parts of distilled water.

Solutio Natrii bisulfurosi.—*Sodium Bisulphite Solution.*—It contains about 30 per cent. of sodium bisulphite ($NaHSO_3$).

Solutio Natrii carbonici.—*Sodium Carbonate Solution.*—Dissolve 1 part of sodium carbonate in 4 parts of distilled water.

Solutio Natrii dimethylaminoazobenzolsulfonici.—*Methyl Orange Solution.*—Dissolve 0,2 parts of methyl orange ($NaC_{14}H_{14}N_2SO_3$) in 1000 parts of alcohol. Add 2 drops of the solution to 100 ccm of water; the solution should develop a red color with 1 drop of half-normal hydrochloric acid volumetric solution, and the color should vanish upon the further addition of 1 drop of half-normal potassium hydroxide volumetric solution.

Solutio Natrii nitrosi.—*Sodium Nitrite Solution.*—When required for use, dissolve 1 part of sodium nitrite ($NaNO_2$) in 9 parts of distilled water.

Solutio Natrii phosphorici.—*Sodium Phosphate Solution.*—Dissolve 1 part of sodium phosphate in 19 parts of distilled water.

Solutio Natrii sulfurosi.—*Sodium Sulphite Solution.*—When required for use, dissolve 1 part of crystallized sodium sulphite ($Na_2SO_3+7H_2O$) in 9 parts of distilled water.

Solutio Natrii thiosulfurici.—*Sodium Thiosulphate Solution.*—Use tenth-normal sodium thiosulphate volumetric solution.

Solutio Phenolphthaleïni.—*Phenolphthalein Solution.*—A colorless solution prepared by dissolving 1 part of phenolphthalein in 99 parts of diluted alcohol.

Solutio Platini chlorati.—*Platinic Chloride Solution.*—Dissolve 1 part of chloroplatinic acid ($H_2PtCl_6+6H_2O$) in 19 parts of distilled water.

Solutio Plumbi acetici.—*Lead Acetate Solution.*—Dissolve 1 part of lead acetate in 9 parts of distilled water.

Solutio Stanni chlorati.—*Stannous Chloride Solution.*—A saturated solution prepared by dissolving tin filings in warm hydrochloric acid.

Preserve it in bottles, into which 2–3 pieces of tin filings have been thrown.

Solutio Zinci jodati cum Amylo.—*Zinc Iodide and Starch Solution.*—Dissolve 4 parts of soluble starch and 20 parts of zinc chloride ($ZnCl_2$) in 100 parts of boiling distilled water. Add to the nearly clear solution the colorless filtrate obtained by filtering a mixture of 1 part of zinc filings, 10 parts of water and 2 parts of iodine, then dilute the mixture with distilled water to make it measure 1000 parts, and filter.

Spiritus.—*Alcohol.*—Use the official alcohol.

Spiritus cum Aethere.—*Spirit of Ether.*—Use the official spirit of ether.

Spiritus dilutus.—*Diluted Alcohol.*—Use the official diluted alcohol.

Stannum raspatum.—*Tin filings.*

Tinctura Curcumae.—*Turmeric Tincture.*—Digest 10 parts of coarsely powdered turmeric root with 75 parts of alcohol, with occasional shaking, by the aid of gentle heat for 24 hours, and filter.

Zincum pulveratum.—*Zinc Powder.*

Zincum purum.—*Pure Zinc.*—It should be free from arsenic.

Zincum raspatum.—*Zinc filings.*

◆

SOLUTIONES VOLUMETRICAE NORMALES.

Volumetric Solutions.

Solutio Kali volumetrica normalis.

Normal Potassium Hydroxide Volumetric Solution.

A solution containing 56,11 g of potassium hydroxide ($KOH = 56,11$) in 1 L., 10 ccm of which should neutralize an aqueous solution of 0,6303 g of oxalic acid ($C_2H_2O_4 + 2H_2O = 126,06$) (Indicator: Phenolphthalein solution).

1 ccm of Normal Potassium Hydroxide Volumetric Solution is the equivalent of:

	Gramme.
Acetic Acid, $C_2H_4O_2$	0,06004.
Hydrogen Chloride, HCl	0,03647.
Lactic Acid, $C_3H_6O_3$	0,09006.
Nitric Acid, HNO_3	0,06302.
Phosphoric Acid, H_3PO_4	0,04903.
Sulphuric Acid, H_2SO_4	0,04904.
Potassium Bitartrate, $KC_4H_5O_6$	0,18816.

Solutio Kali volumetrica seminormalis.

Half-Normal Potassium Hydroxide Volumetric Solution.

A solution containing 28,055 g of potassium hydroxide ($KOH = 56,11$) in 1 L., 10 ccm of which should neutralize 10 ccm of half-normal hydrochloric acid volumetric solution (Indicator: Phenolphthalein solution).

Solutio Kali volumetrica decinormalis.

Tenth-Normal Potassium Hydroxide Volumetric Solution.

A solution containing 5,611 g of potassium hydroxide ($KOH=56,11$) in 1 L., 10 ccm of which should neutralize 10 ccm of tenth-normal hydrochloric acid volumetric solution (Indicator : Phenolphthalein solution).

1 ccm of Tenth-Normal Potassium Hydroxide Volumetric Solution is the equivalent of :

	Gramme.
Camphoric Acid, $C_{10}H_{16}O_4$	0,01001.
Trichloracetic Acid, $C_2HCl_3O_2$	0,01634.

Solutio Kali volumetrica centinormalis.

Hundredth-Normal Potassium Hydroxide Volumetric Solution.

A solution containing 0,5611 g of potassium hydroxide ($KOH=56,11$) in 1 L., 10 ccm of which should neutralize 10 ccm of hundredth-normal hydrochloric acid volumetric solution (Indicator : Iodeosin solution).

Solutio Kali spirituosa volumetrica seminormalis.

Half-Normal Alcoholic Potassium Hydroxide Volumetric Solution.

A colorless or pale yellowish alcoholic solution containing 28,055 g of potassium hydroxide ($KOH=56,11$) in 1 L., 10 ccm of which, when titrated on use, should neutralize 10 ccm of half-normal hydrochloric acid volumetric solution (Indicator : Phenolphthalein solution).

Solutio Kali spirituosa volumetrica decinormalis.

Tenth-Normal Alcoholic Potassium Hydroxide Volumetric Solution.

A colorless or pale yellowish alcoholic solution containing 5,611 g of potassium hydroxide ($KOH=56,11$) in 1 L., 10 ccm of which, when titrated on use, should neutralize 10 ccm of tenth-normal hydrochloric acid volumetric solution (Indicator : Phenolphthalein solution).

Acidum hydrochloricum volumetricum normale.

Normal Hydrochloric Acid Volumetric Solution.

A solution containing 36,47 g of hydrogen chloride ($HCl = 36,47$) in 1 L., 10 ccm of which should neutralize 10 ccm of normal potassium hydroxide volumetric solution (Indicator : Methyl orange solution).

1 ccm of Normal Hydrochloric Acid Volumetric Solution is the equivalent of :

	Gramme.
Ammonia, NH_3	0,01703.
Calcium Hydroxide, $Ca(OH)_2$	0,03704.
Formaldehyde, CH_2O	0,03002.
Potassium Hydroxide, KOH	0,05611.
Potassium and Sodium Tartrate, $KNaC_4H_4O_6 + 4H_2O$	0,14111.
Potassium Bicarbonate, $KHCO_3$	0,10011.
Potassium Carbonate, K_2CO_3	0,06910.
Potassium Tartrate, $K_2C_4H_4O_6 + \frac{1}{2}H_2O$	0,11763.
Lithium Carbonate, Li_2CO_3	0,03694.
Sodium Carbonate, $Na_2CO_3 + 10H_2O$	0,14308.
Sodium Carbonate, Na_2CO_3	0,05300.
Sodium Hydroxide, NaOH	0,04001.

Acidum hydrochloricum volumetricum seminormale.

Half-Normal Hydrochloric Acid Volumetric Solution.

A solution containing 18,235 g of hydrogen chloride ($HCl = 36,47$) in 1 L., 10 ccm of which should neutralize 10 ccm of half-normal potassium hydroxide volumetric solution (Indicator : Methyl orange solution).

1 ccm of Half-Normal Hydrochloric Acid Volumetric Solution is the equivalent of:

	Gramme.
Calcium Lactate, $CaC_6H_{10}O_6$	0,05455.

Acidum hydrochloricum volumetricum decinormale.

Tenth-Normal Hydrochloric Acid Volumetric Solution

A solution containing 3,647 g of hydrogen chloride ($HCl = 36,47$) in 1 L., 10 ccm of which should neutralize 10 ccm of tenth-normal potassium hydroxide volumetric solution (Indicator: Phenolphthalein solution).

1 ccm of Tenth-Normal Hydrochloric Acid Volumetric Solution is the equivalent of:

	Gramme.
Cinchona Bases, $\frac{C_{20}H_{24}N_2O_2 + C_{19}H_{22}N_2O}{2}$ ...	0,03093.
Ipecacuanha Bases, $\frac{C_{29}H_{40}N_2O_4 + C_{28}H_{38}N_2O_4}{4}$	0,02367.
Morphine, $C_{17}H_{19}NO_3$	0,02852.
Nux Vomica Bases, $\frac{C_{21}H_{22}N_2O_2 + C_{23}H_{26}N_2O_4}{2}$	0,03643.

Acidum hydrochloricum volumetricum centinormale.

Hundredth-Normal Hydrochloric Acid Volumetric Solution.

A solution containing 0,3647 g of hydrogen chloride ($HCl = 36,47$) in 1 L., 10 ccm of which should neutralize 10 ccm of hundredth-normal potassium hydroxide volumetric solution (Indicator: Iodeosin solution).

1 ccm of Hundredth-Normal Hydrochloric Acid Volumetric Solution is the equivalent of:

	Gramme.
Atropine, $C_{17}H_{23}NO_3$	0,00289.

Pomegranate Bases, $\frac{2C_8H_{25}NO+C_9H_{15}NO+C_9H_{17}NO}{4}$	0,00148.
Hyoscyamine, $C_{17}H_{23}NO_3$	0,00289.

Solutio Ammonii sulfocyanici volumetrica decinormalis.

Tenth-Normal Ammonium Sulphocyanate Volumetric Solution.

A solution containing 7,612 g of ammonium sulphocyanate (NH_4CNS =76,12) in 1 L., 10 ccm of which should be required to produce a red color in 10 ccm of tenth-normal silver nitrate volumetric solution, to which 0,8 ccm of nitric acid and 0,5 ccm of ammonium ferric sulphate solution have previously been added.

1 ccm of Tenth-Normal Ammonium Sulphocyanate Volumetric Solution is the equivalent of:

	Gramme.
Silver, Ag	0,010788.
Ferrous Iodide, FeJ_2	0,015484.
Mercury, Hg.	0,010030.
Iodine, J.	0,012692.

Solutio Argenti nitrici volumetrica decinormalis.

Tenth-Normal Silver Nitrate Volumetric Solution.

A solution containing 16,989 g of silver nitrate ($AgNO_3$=169,89) in 1 L.

1 ccm of Tenth-Normal Silver Nitrate Volumetric Solution is the equivalent of:

	Gramme.
Allyl Isothiocyanate, C_4H_5NS	0,004957.
Ammonium Bromide, NH_4Br	0,009796.

Ferrous Iodide, FeJ_2	0,015484.
Hydrogen Cyanide, HCN	0,005404.
Potassium Bromide, KBr	0,011902.
Potassium Iodide, KJ	0,016602.
Sodium Bromide, $NaBr$	0,010292.
Sodium Iodide, NaJ	0,014992.

Solutio Jodi volumetrica decinormalis.

Tenth-Normal Iodine Volumetric Solution.

A solution containing 12,692 g of iodine ($J = 126,92$) in 1 L., dissoved by the aid of 20 g of potassium iodide, 10 ccm of which **should** be decolorized by 10 ccm of tenth-normal sodium thiosulphate **volumetric** solution (Indicator : Starch solution).

1 ccm of Tenth-Normal Iodine Volumetric Solution is the equivalent of :

	Gramme.
Arsenous Acid, As_2O_3	0,004948.
Iron, Fe	0,005584.
Tartar Emetic, $2KSbC_4H_4O_7 + H_2O$	0,016618.

Solutio Kalii permanganici volumetrica decinormalis.

Tenth-Normal Potassium Permanganate Volumetric Solution.

A solution containing 3,16 g of potassium permanganate ($KMnO_4 =$ 158,03) in 1 L.

Solutio Natrii chlorati volumetrica decinormalis.

Tenth-Normal Sodium Chloride Volumetric Solution.

A solution containing 5,846 g of sodium chloride ($NaCl = 58,46$) in

1 L., 10 ccm of which, to which 1–2 drops of potassium chromate solution have previously been added, should require 10 ccm of tenth-normal silver nitrate volumetric solution to produce a permanent reddish color.

1 ccm of Tenth-Normal Sodium Chloride Volumetric Solution is the equivalent of:

	Gramme.
Silver Nitrate, $AgNO_3$	0,01699.

Solutio Natrii thiosulfurici volumetrica decinormalis.

Tenth-Normal Sodium Thiosulphate Volumetric Solution.

A solution containing 24,82 g of sodium thiosulphate ($Na_2S_2O_3 + 5H_2O = 248{,}20$) in 1 L., 10 ccm of which should be required for the decoloration of 0,12692 g of iodine, dissolved by the aid of 0,2 g of potassium iodide in 10 ccm of distilled water (Indicator: Starch solution).

1 ccm of Tenth-Normal Sodium Thiosulphate Volumetric Solution is the equivalent of:

	Gramme.
Chlorine, Cl	0,003546.
Iron, Fe	0,005584.
Iodine, J	0,012692.

* * *

Table I.

List of the common official medicines, which should always be kept in a dispensary.

Acetanilidum.—*Acetanilid.*
Acidum acetylsalicylicum.—*Acetylsalicylic acid.*
,, boricum.—*Boric acid.*
,, carbolicum.—*Carbolic acid.*
,, ,, pro desinfectione.—*Carbolic acid for disinfection.*
,, hydrochloricum dilutum.—*Diluted hydrochloric acid.*
,, salicylicum.—*Salicylic acid.*
,, tannicum.—*Tannic acid.*
,, tartaricum.—*Tartaric acid.*
Adeps Lanae cum Aqua.—*Hydrous wool fat.*
Aether pro narcosi.—*Narcotic ether.*
Antidotum Arsenici.—*Arsenic Antidote.*
Antipyrinum.—*Antipyrine.*
Apomorphinum hydrochloricum.—*Apomorphine hydrochloride.*
Aqua Ammoniae.—*Ammonia water.*
,, carbolisata.—*Carbolic acid water.*
,, destillata.—*Distilled water.*
,, Pruni macrophyllae.—*Bakuchi water.*
Argentum nitricum fusum.—*Fused silver nitrate.*
Atropinum sulfuricum.—*Atropine sulphate.*
Balsamum peruvianum.—*Balsam of Peru.*
Bismutum subnitricum.—*Bismuth subnitrate.*
,, subsalicylicum.—*Bismuth subsalicylate.*
Calcaria usta.—*Quicklime.*
Calcium sulfuricum ustum.—*Exsiccated calcium sulphate.*
Camphora depurata.—*Purified camphor.*

Chininum hydrochloricum.—*Quinine hydrochloride.*
Chloralum hydratum.—*Chloral hydrate.*
Chloroformium pro narcosi.—*Narcotic chloroform.*
Cocaïnum hydrochloricum.—*Cocaine hydrochloride.*
Codeïnum phosphoricum.—*Codeine phosphate.*
Cortex Chinae.—*Cinchona bark.*
Cuprum sulfuricum.—*Copper sulphate.*
Diacetylmorphinum hydrochloricum.—*Diacetylmorphine hydrochloride.*
Dimethylamidoantipyrinum.—*Dimethylamidoantipyrine.*
Extractum Gentianae scabrae.—*Extract of Ryutan.*
,, Liquiritiae.—*Extract of Licorice.*
,, Scopoliae.—*Extract of scopolia.*
,, Secalis cornuti.—*Extract of ergot.*
Ferrum reductum.—*Reduced iron.*
Folia Digitalis.—*Digitalis leaves.*
,, Sennae.—*Senna leaves.*
Formalinum.—*Formaline.*
Glycerinum.—*Glycerin.*
Guajacolum carbonicum.—*Guaiacol carbonate.*
Gummi arabicum.—*Gum arabic.*
Hydrargyrum bichloratum.—*Mercuric chloride.*
,, chloratum.—*Mercurous chloride.*
Jodoformium.—*Iodoform.*
Kalium bitartaricum.—*Potassium bitartrate.*
,, bromatum.—*Potassium bromide.*
,, chloricum.—*Potassium chlorate.*
,, jodatum.—*Potassium iodide.*
Kreosotum.—*Creosote.*
Liquor Ferri sesquichlorati.—*Solution of ferric chloride.*
,, Gelatinae sterilisatus.—*Sterilized solution of gelatin.*
,, Kalii acetici.—*Solution of potassium acetate.*
,, Kalii arsenicosi.—*Solution of potassium arsenite.*
,, Plumbi subacetici.—*Solution of lead subacetate.*

Magnesia usta.—*Magnesium oxide.*
Magnesium sulfuricum.—*Magnesium sulphate.*
Morphinum hydrochloricum.—*Morphine hydrochloride.*
Natrium bicarbonicum.—*Sodium bicarbonate.*
,, bromatum.—*Sodium bromide.*
,, chloratum.—*Sodium chloride.*
,, salicylicum.—*Sodium salicylate.*
Oleum Cacao.—*Oil of theobroma.*
,, Jecoris.—*Cod liver oil.*
,, Olivarum.—*Olive oil.*
,, Ricini.—*Castor oil.*
,, Sesami.—*Sesame oil.*
Opium.—*Opium.*
Pulvis Doveri.—*Dover's powder.*
Radix Gentianae scabrae.—*Ryutan root.*
,, Ipecacuanhae.—*Ipecacuanha root.*
,, Liquiritiae.—*Licorice root.*
Resina Jalapae.—*Jalap resin.*
Rhizoma Rhei.—*Rhubarb.*
Saccharum Lactis.—*Milk sugar.*
Sal Calorinum factitium.—*Artificial salt of Karlsbad.*
Santoninum.—*Santonin.*
Serum antidiphthericum.—*Antidiphtheric serum.*
Sirupus Ferri jodati.—*Syrup of ferrous iodide.*
,, simplex.—*Syrup.*
Spiritus.—*Alcohol.*
Tinctura amara.—*Bitter tincture.*
,, Aurantii corticis.—*Tincture of bitter orange peel.*
,, Ipecacuanhae.—*Tincture of ipecacuanha.*
,, Jodi.—*Tincture of iodine.*
,, Opii.—*Tincture of opium.*
,, Strophanthi.—*Tincture of strophanthus.*
,, Strychni.—*Tincture of nux vomica.*

Tinctura Valerianae.—*Tincture of kesso.*
Unguentum Hydrargyri cinereum.—*Mercurial ointment.*
,, simplex.—*Ointment.*
,, Zinci.—*Ointment of zinc oxide.*
Vaselinum flavum.—*Yellow vaseline.*
Zincum sulfuricum.—*Zinc sulphate.*

Table II.

List of the official medicines, which belong to the class of poisonous medicines, and should be preserved with special care, separated from others, in a place which can be shut up.

Acidum arsenicosum.—*Arsenous acid.*
,, hydrocyanicum dilutum.—*Diluted hydrocyanic acid.*
Apomorphinum hydrochloricum.—*Apomorphine hydrochloride.*
Atropinum sulfuricum.—*Atropine sulphate.*
Emetinum hydrochloricum.—*Emetine hydrochloride.*
Homatropinum hydrobromicum.—*Homatropine hydrobromide.*
Hydrargyrum bichloratum.—*Mercuric chloride.*
,, bijodatum.—*Red Mercuric iodide.*
,, oxydatum flavum.—*Yellow mercuric oxide.*
,, ,, rubrum.—*Red mercuric oxide.*
,, Salicylicum.—*Mercuric salicylate.*
Liquor Kalii arsenicosi.—*Solution of potassium arsenite.*
Morphinum hydrochloricum.—*Morphine hydrochloride.*
,, sulfuricum.—*Morphine sulphate.*
Oleum Crotonis.—*Croton oil.*

Pastilli Hydrargyri bichlorati.—*Pastils of mercuric chloride.*
Phosphorus.—*Phosphorus.*
Physostigminum salicylicum.—*Physostigmine salicylate.*
,, sulfuricum.—*Physostigmine sulphate.*
Pilocarpinum hydrochloricum.—*Pilocarpine hydrochloride.*
Pilulae Acidi arsenicosi.—*Pills of arsenous acid.*
Scopolaminum hydrobromicum.—*Scopolamine hydrobromide.*
Strychninum nitricum.—*Strychnine nitrate.*

◆

Table III.

List of the official medicines, which belong to the class of strong or powerful medicines, and should be preserved with care, separated from others.

Acetanilidum.—*Acetanilid.*
Acidum carbolicum.—*Carbolic acid.*
,, ,, liquefactum.—*Liquefied carbolic acid.*
,, ,, pro desinfectione.—*Carbolic acid for disinfection.*
,, chromicum.—*Chromic acid.*
,, diaethylbarbituricum.—*Diethylbarbituric acid.*
,, hydrochloricum.—*Hydrochloric acid.*
,, nitricum —*Nitric acid.*
,, ,, crudum.—*Crude nitric acid.*
,, ,, fumans.—*Fuming nitric acid.*
,, picrinicum.—*Picric acid.*
,, sulfuricum.—*Sulphuric acid.*
,, ,, crudum.—*Crude sulphuric acid.*
,, trichloraceticum.—*Trichloracetic acid.*

Aethylium bromatum.—*Ethyl bromide.*
,, chloratum.—*Ethyl chloride.*
Aethylmorphinum hydrochloricum.—*Ethylmorphine hydrochloride.*
Agaricinum.—*Agaricine.*
Amylum nitrosum.—*Amyl nitrite.*
Antipyrino-Caffeïnum citricum.—*Antipyrine-Caffeine citrate.*
Antipyrinum.—*Antipyrine.*
,, salicylicum.—*Antipyrine salicylate.*
Aqua Pruni armeniacae.—*Apricot water.*
,, ,, macrophyllae.—*Bakuchi water.*
Argentum nitricum.—*Silver nitrate.*
,, ,, cum Kalio nitrico.—*Mitigated caustic.*
,, ,, fusum.—*Fused silver nitrate.*
Bromum.—*Bromine.*
Bulbus Scillae.—*Squill.*
Caffeïno-Natrium benzoïcum.—*Caffeine sodio-benzoate.*
Caffeïno-Natrium salicylicum.—*Caffeine sodio-salicylate.*
Caffeïnum.—*Caffeine.*
Camphora monobromata.—*Monobromated camphor.*
Cantharides.—*Cantharides.*
Cerium oxalicum.—*Cerium oxalate.*
Chloralum hydratum.—*Chloral hydrate.*
Chloroformium.—*Chloroform.*
,, pro narcosi.—*Narcotic chloroform.*
Cocaïnum hydrochloricum.—*Cocaine hydrochloride.*
Codeïnum phosphoricum.—*Codeine phosphate.*
Collodium cantharidatum.—*Cantharidal collodion.*
Cuprum aluminatum.—*Copper alum.*
,, sulfuricum.—*Copper sulphate.*
Diacetylmorphinum hydrochloricum.—*Diacetylmorphine hydrochloride.*
Dimethyamidoantipyrinum.—*Dimethylamidoantipyrine.*
Extractum Cannabis indicae.—*Extract of Indian hemp.*
,, Colocynthidis.—*Extract of colocynth.*

Extractum Filicis.—*Extract of male fern.*
,, Hyoscyami.—*Extract of hyoscyamus*
,, Opii.—*Extract of opium.*
,, Scopoliae.—*Extract of scopolia.*
,, Secalis cornuti.—*Extract of ergot.*
,, ,, ,, fluidum.—*Fluidextract of ergot.*
,, Strychni.—*Extract of nux vomica.*
Folia Digitalis.— *Digitalis leaves.*
,, Hyoscyami.—*Hyoscyamus leaves.*
,, Scopoliae.—*Scopolia leaves.*
,, Stramonii.—*Stramonium leaves.*
Formalinum.—*Formaline.*
Fructus Colocynthidis.—*Colocynth.*
Guajacolum.—*Guaiacol.*
Herba Cannabis indicae.—*Indian hemp.*
,, Lobeliae.—*Lobelia.*
Hydrargyrum chloratum.—*Mercurous chloride.*
,, ,, vapore paratum.—*Mercurous chloride prepared by steam.*
Hydrargyrum jodatum.—*Yellow mercurous iodide.*
,, oleinicum.—*Mercuric oleate.*
,, praecipitatum album.—*Ammoniated mercury.*
Jodoformium.—*Iodoform.*
Jodum.—*Iodine.*
Kali causticum.—*Potassium hydroxide.*
Kalium chloricum.—*Patassium chlorate.*
,, jodatum.—*Potassium iodide.*
Kreosotum.—*Creosote.*
Lactylphenetidinum.—*Lactylphenetidine.*
Liquor Jodi compositus.—*Compound solution of iodine.*
,, Kali caustici.—*Solution of potassium hydroxide.*
,, Plumbi subacetici.—*Solution of lead subacetate.*
Methylsulfonalum.—*Methylsulphonal.*

Minium.—*Red Lead.*
Natrum causticum.—*Sodium hydroxide.*
Oleum Sinapis aethereum.—*Volatile oil of mustard.*
Opium.—*Opium.*
Paraaminobenzoyldiaethylaminoaethanolum hydrochloricum.—*Para-aminobenzoyldiethylaminoethanol hydrochloride.*
Pastilli Cocaïni hydrochlorici.—*Pastils of cocaine hydrochloride.*
,, **Hydrargyri chlorati.**—*Pastils of mercurous chloride.*
,, **Morphini hydrochlorici.**—*Pastils of morphine hydrochloride.*
,, **Opii et Ipecacuanhae.**—*Pastils of opium and ipecacuanha.*
Phenacetinum.—*Phenacetin.*
Phenolphthaleïnum.—*Phenolphthalein.*
Plumbum aceticum.—*Lead acetate.*
,, **oxydatum.**—*Lead oxide.*
Pulvis Doveri.—*Dover's powder.*
Pyoktaninum coeruleum.—*Pyoctanine blue.*
Radix Ipecacuanhae.—*Ipecacuanha root.*
Resina Jalapae.—*Jalap resin.*
Resina Podophylli.—*Podophyllum resin.*
Rhizoma Filicis.—*Male fern rhizome.*
,, **Scopoliae.**—*Scopolia rhizome.*
Santoninum.—*Santonin.*
Secale cornutum.—*Ergot.*
Semen Colchici.—*Colchicum seed.*
,, **Physostigmatis.**—*Calabar bean.*
,, **Strophanthi.**—*Strophanthus seed.*
,, **Strychni.**—*Nux vomica.*
Serum antidiphthericum.—*Antidiphtheric serum.*
,, **antitetanicum.**—*Antitetanic serum.*
Stibio-Kalium tartaricum.—*Tartar emetic.*
Sulfonalum.—*Sulphonal.*
Theobromino-natrium salicylicum.—*Theobromine sodio-salicylate.*
Theophyllinum.—*Theophylline.*

Tinctura Aconiti Napelli.—*Tincture of aconite.*
,, Cantharidum.—*Tincture of cantharides.*
,, Chloroformii et Morphini composita.—*Compound tincture of chloroform and morphine.*
Tinctura Colchici.—*Tincture of colchicum.*
,, Colocynthidis.—*Tincture of colocynth.*
,, Digitalis.—*Tincture of digitalis.*
,, Ipecacuanhae.—*Tincture of ipecacuanha.*
,, Jodi.—*Tincture of iodine.*
,, Lobeliae.—*Tincture of lobelia.*
,, Opii.—*Tincture of opium.*
,, ,, benzoïca.—*Benzoated tincture of opium.*
,, Scopoliae.—*Tincture of scopolia.*
,, Strophanthi.—*Tincture of strophanthus.*
,, Strychni.—*Tincture of nux vomica.*
Tropacocaïnum hydrochloricum.—*Tropacocaine hydrochloride.*
Tubera Aconiti.—*Aconite root.*
Tubera Jalapae.—*Jalap.*
Tuberculinum.—*Tuberculin.*
Ungnentum vesicans fortius.—*Strong blistering ointment.*
Vinum Colchici.—*Wine of colchicum.*
,, Ipecacuanhae.—*Wine of ipecacuanha.*
,, Opii aromaticum.—*Aromatic wine of opium.*
Zincum chloratum.—*Zinc chloride.*
,, sulfocarbolicum.—*Zinc phenolsulphonate.*
,, sulfuricum.—*Zinc sulphate.*
,, valerianicum.—*Zinc valerianate.*

Table IV.

List of maximum doses for an adult.

Physicians are not allowed to prescribe the following medicines in doses greater than those given in the following table, unless they specially notify that by putting an exclamation mark (!) under the name of a medicine in the prescription.

Names of medicines.	Maximum dose at a time.	Maximum dose for a day.
	Gramme.	Gramme.
Acetanilidum	0,3	1,0
Acidum arsenicosum	0,005	0,015
„ carbolicum	0,1	0,3
„ diaethylbarbituricum	0,5	1,0
„ hydrocyanicum dilutum	0,1	0,3
Aethylmorphinum hydrochloricum	0,03	0,1
Agaricinum	0,1	—
Antipyrino-Caffeïnum citricum	1,0	3,0
Antipyrinum	1,0	3,0
„ salicylicum	1,0	3,0
Apomorphinum hydrochloricum	0,02	—
Aqua Pruni armeniacae	2,0	6,0
„ „ macrophyllae	2,0	6,0
Argentum nitricum	0,03	0,1
Atropinum sulfuricum	0,001	0,003
Bulbus Scillae	0,2	1,0
Caffeïno-Natrium benzoïcum	1,0	3,0
„ „ salicylicum	1,0	3,0
Caffeïnum	0,5	1,5
Camphora monobromata	0,3	1,0
Cantharides	0,03	0,1
Cerium oxalicum	0,3	1,0
Chloralum hydratum	2,0	6,0
Cocaïnum hydrochloricum	0,05	0,15
Codeïnum phosphoricum	0,1	0,3

Names of medicines.	Maximum dcse at a time.	Maximum dose for a day.
	Gramme.	Gramme.
Cuprum sulfuricum	1,0	—
Diacetylmorphinum hydrochloricum	0,005	0,015
Dimethylamidoantipyrinum	0,3	1,0
Emetinum hydrochloricum	0,05	0,15
Extractum Cannabis indicae	0,1	0,3
„ Colocynthidis	0,05	0,15
„ Filicis	—	10,0
„ Hyoscyami	0,1	0,3
„ Opii	0,1	0,3
„ Scopoliae	0,05	0,15
„ Secalis cornuti	0,3	1,0
„ Strychni	0,05	0,1
Folia Digitalis	0,2	1,0
„ Hyoscyami	0,3	1,0
„ Scopoliae	0,15	0,5
„ Stramonii	0,2	0,6
Guajacolum	0,3	1,0
Herba Lobeliae	0,1	0,3
Homatropinum hydrobromicum	0,001	0,003
Hydrargyrum bichloratum	0,02	0,06
„ bijodatum	0,02	0,06
„ jodatum	0,02	0,06
„ salicylicum	0,02	0,06
Jodoformium	0,2	0,6
Jodum	0,02	0,06
Kreosotum	0,5	1,5
Lactylphenetidinum	0,7	2,0
Liquor Kalii arsenicosi	0,5	1,5
Methylsulfonalum	1,0	3,0

Names of medicines.	Maximum dose at a time.	Maximum dose for a day.
	Gramme.	Gramme.
Morphinum hydrochloricum	0,03	0,1
„ sulfuricum	0,03	0,1
Oleum Crotonis	0,05	0,15
Opium	0,15	0,5
Phenacetinum	1,0	3,0
Phosphorus	0,001	0,003
Physostigminum salicylicum	0,001	0,003
„ sulfuricum	0,001	0,003
Pilocarpinum hydrochloricum	0,02	0,04
Plumbum aceticum	0,1	0,3
Pulvis Doveri	1,0	3,0
Resina Jalapae	0,5	1,5
„ Podophylli	0,1	0,3
Rhizoma Scopoliae	0,1	0,3
Santoninum	0,1	0,3
Scopolaminum hydrobromicum	0,0005	0,0015
Secale cornutum	1,0	5,0
Semen Strychni	0,1	0,2
Stibio-Kalium tartaricum	0,1	0,3
Strychninum nitricum	0,005	0,015
Sulfonalum	1,0	3,0
Theobromino-Natrium salicylicum	1,0	3,0
Theophylliuum	0,5	1,5
Tinctura Aconiti	0,5	1,5
„ Cantharidum	0,2	0,6
„ Colchici	2,0	6,0
„ Colocynthidis	1,0	3,0
„ Digitalis	1,5	5,0
„ Jodi	0,2	0,6

Names of medicines.	Maximum dose at a time.	Maximum dose for a day.
	Gramme.	Gramme.
„ Lobeliae	1,0	3,0
„ Opii	1,5	5,0
„ Scopoliae	1,0	3,0
„ Strophanthi	0,5	1,5
„ Strychni	1,0	2,0
Tropacocaïnum hydrochloricum	0,1	0,3
Vinum Colchici	2,0	6,0
„ Opii aromaticum	1,5	5,0
Zincum sulfuricum	1,0	—

Table V.

Names, symbols and atomic weights of the more important elements.

Names of elements.	Symbols.	Atomic weights.
Aluminium, *Aluminium*	Al	27,1
Argentum, *Silver*	Ag	107,88
Arsenicum, *Arsenic*	As	74,96
Baryum, *Barium*	Ba	137,37
Bismutum, *Bismuth*	Bi	208,0
Borum, *Boron*	B	11,0
Bromum, *Bromine*	Br	79,92

Names of elements.	Symbols.	Atomic weights.
Calcium, *Calcium*	Ca	40,07
Carboneum, *Carbon*	C	12,005
Cerium, *Cerium*	Ce	140,25
Chlorum, *Chlorine*	Cl	35,46
Chromium, *Chromium*	Cr	52,0
Cuprum, *Copper*	Cu	63,57
Ferrum, *Iron*	Fe	55,84
Hydrargyrum, *Mercury*	Hg	200,6
Hydrogenium, *Hydrogen*	H	1,008
Jodum, *Iodine*	J	126,92
Kalium, *Potassium*	K	39,1
Lithium, *Lithium*	Li	6,94
Magnesium, *Magnesium*	Mg	24,32
Manganum, *Manganese*	Mn	54,93
Natrium, *Sodium*	Na	23,0
Nitrogenium, *Nitrogen*	N	14,01
Oxygenium, *Oxygen*	O	16,0
Phosphorus, *Phosphorus*	P	31,04
Plumbum, *Lead*	Pb	207,2
Stannum, *Tin*	Sn	118,7
Stibium, *Antimony*	Sb	120,2
Sulfur, *Sulphur*	S	32,06
Zincum, *Zinc*	Zn	65,37

A comparative table of the official and the ordinary popular names of medicines.

(*a*)

Acidum acetylsalicylicum. Acetylsalicylic acid.	***Aspirinum.*** *Aspirin.*
Acidum diaethylbarbituricum. Diethylbarbituric acid.	***Veronalum.*** *Veronal.*
Aethylmorphinum hydrochloricum. Ethylmorphine hydrochloride.	***Dioninum.*** *Dionin.*
Albuminum tannicum. Albumen tannate.	***Tannalbinum.*** *Tannalbin.*
Ammonium sulfoichthyolicum. Ammonium sulphoichthyolate.	***Ichthyolum.*** *Ichthyol.*
Antipyrino-Caffeïnum citricum. Antipyrine-Caffeine citrate.	***Migräninum.*** *Migraenin.*
Antipyrinum salicylicum. Antipyrine salicylate.	***Salipyrinum.*** *Salipyrin.*
Argentum proteïnicum. Proteine silver.	***Protargolum.*** *Protargol.*
Bismutum jodatum subgallicum. Bismuth oxyiodosubgallate.	***Airolum.*** *Airol.*
Bismutum subgallicum. Bismuth subgallate.	***Dermatolum.*** *Dermatol.*

Bismutum tribromphenylicum.	***Xeroformum.***
Bismuth tribromphenolate.	*Xeroform.*
Chininum aethylcarbonicum.	***Euchininum.***
Quinine ethylcarbonate.	*Euquinine.*
Diacetylmorphinum hydrochloricum.	***Heroinum hydrochloricum.***
Diacetylmorphine hydrochloride.	*Heroin hydrochloride.*
Dimethylamidoantipyrinum.	***Pyramidonum.***
Dimethylamidoantipyrine.	*Pyramidon.*
Hexamethylentetraminum.	***Urotropinum.***
Hexamethylenetetramine.	*Urotropin.*
Kalium sulfoguajacolicum.	***Thiocolum.***
Potassium guaiacolsulphonate.	*Thiocol.*
Lactylphenetidinum.	***Lactopheninum.***
Lactylphenetidine.	*Lactophenin.*
Methylsulfonalum.	***Trionalum.***
Methylsulphonal.	*Trional.*
Paraaminobenzoyldiaethylaminoaethanolum hydrochloricum.	***Novocainum.***
Paraminobenzoyldiethylaminoethanol hydrochloride.	*Novocain.*
Phenyldihydrochinazolinum tannicum.	***Orexinum tannicum.***
Phenyldihydroquinazoline tannate	*Orexin tannate.*
Phenylum salicylicum.	***Salolum.***
Phenyl salicylate.	*Salol.*

Tanninum acetylicum. Acetyl tannic acid.	***Tannigenum.*** *Tannigen.*
Theobromino-natrium salicylicum. Theobromine sodio-salicylate.	***Diuretinum.*** *Diuretin.*

(*b*)

Airolum. Airol.	***Bismutum jodatum subgallicum.*** *Bismuth oxyiodosubgallate.*
Aspirinum. Aspirin.	***Acidum acetylsalicylicum.*** *Acetylsalicylic acid.*
Dermatolum. Dermatol.	***Bismutum subgallicum.*** *Bismuth subgallate.*
Dioninum. Dionin.	***Aethylmorphinum hydrochloricum.*** *Ethylmorphine hydrochloride.*
Diuretinum. Diuretin.	***Theobromino-natrium salicylicum.*** *Theobromine sodio-salicylate.*
Euchininum. Euquinine.	***Chininum aethylcarbonicum.*** *Quinine ethylcarbonate.*
Heroinum hydrochloricum. Heroin hydrochloride.	***Diacetylmorphinum hydrochloricum.*** *Diacetylmorphine hydrochloride.*
Ichthyolum. Ichthyol.	***Ammonium sulfoichthyolicum.*** *Ammonium sulphoichthyolate.*

Lactopheninum.	***Lactylphenetidinum.***
Lactophenin.	*Lactylphenetidine.*
Migräninum.	***Antipyrino-Caffeïnum citricum.***
Migraenin.	*Antipyrine-Caffeine citrate.*
Novocainum.	***Paraminobenzoyldiaethylaminoaethanolum hydrochloricum.***
Novocain.	*Paraminobenzoyldiethylaminoethanol hydrochloride.*
Orexinum tannicum.	***Phenyldihydrochinazolinum tannicum.***
Orexin tannate.	*Phenyldihydroquinazoline tannate.*
Protargolum.	***Argentum proteïnicum.***
Protargol.	*Proteine silver.*
Pyramidonum.	***Dimethylamidoantipyrinum.***
Pyramidon.	*Dimethylamidoantipyrine.*
Salipyrinum.	***Antipyrinum salicylicum.***
Salipyrin.	*Antipyrine salicylate.*
Salolum.	***Phenylum salicylicum.***
Salol.	*Phenyl salicylate.*
Tannalbinum.	***Albuminum tannicum.***
Tannalbin.	*Albumen tannate.*
Tannigenum.	***Tanninum acetylicum.***
Tannigen.	*Acetyl tannic acid.*
Thiocolum.	***Kalium sulfoguajacolicum.***
Thiocol.	*Potassium guaiacolsulphonate.*

Trionalum.	***Methylsulfonalum.***
Trional.	*Methylsulphonal.*
Urotropinum.	***Hexamethylentetraminum.***
Urotropin.	*Hexamethylenetetramine.*
Veronalum.	***Acidum diaethylbarbituricum.***
Veronal.	*Diethylbarbituric acid.*
Xeroformum.	***Bismutum tribromphenylicum.***
Xeroform.	*Bismuth tribromphenolate.*

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